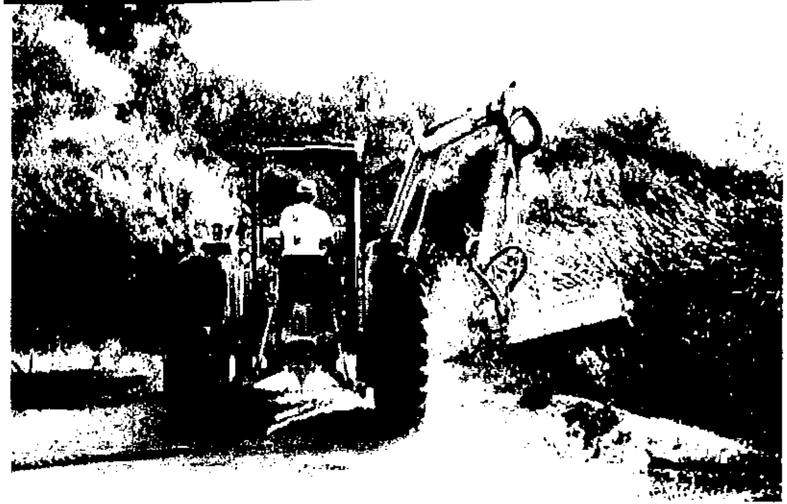
Santa Clara Valley
Water District

SHREE DHARASKER



Final Environmental Impact Report for the Multi-Year Stream Maintenance Program

August 2001

This document supplements the Draft Environmental Impact Report
and Stream Maintenance Program Report
for the Multi-Year Stream Maintenance Program
published March 28, 2001.

TABLE OF CONTENTS

I. Introduction

II. Summary

III. Appendix F - Public Comments and Responses

IV. List of Revisions to EIR

V. Revised EIR Tables
  - Table II-3 - *Extent of Projected Sediment Removal*
  - Table II-4 - *Extent of Projected Vegetation Management*
  - Table II-5 - *Existing Annual HerbicideUse*
  - Table II-7 - *Compensatory Stream Vegetation and Special-Status Species Mitigation*
  - Table IV-B-7 - *Summary of in-channel vegetation impacts in acres*
  - Table V-1 - *Definition of Alternatives*
  - Table V-2 - *Alternatives - Comparison of Initial Stream Vegetation Impacts*
  - Table V-3 - *Comparison of Alternatives by Potentially Significant Impacts*
  - Table V-4 - *Cost Comparison of Alternatives*

VI. Revised EIR Figures
  - Figure II-3 - *Projected Channel Vegetation Management Work Areas*
  - Figure II-5 - *Combined Channel Work Areas - Projected*
  - Figure IV B-4 - *Critical Habitat and Red-Legged Frog Occurrences in the Multi-Year Stream Maintenance Program Area*

VII. List of Revisions to SMP

VIII. Revised SMP Tables
  - Table 2-2 - *Herbicide Use for the Multi-Year Stream Maintenance Program*
  - Table 2-4 - *New Work Areas*
  - Table 5-1 - *Compensatory Stream Vegetation and Special Status Species Mitigation*
  - Table 5-3 - *Conceptual Agreements*

IX New SMP Figure 4-1 - *Santa Clara County Trails*

X. SMP Appendix E - *Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities*

XI. SMP Appendix G - *Best Management Practices List*

XII. SMP Appendix J - *Mitigation Monitoring and Reporting Program*

Santa Clara Valley Water District

FINAL EIR

INTRODUCTION

August 21, 2001

Multi-Year Stream Maintenance Program
Final Environmental Impact Report

I. Introduction

The Multi-Year Stream Maintenance Program (SMP) describes a proposed program for conducting routine stream and canal maintenance on facilities of the Santa Clara Valley Water District (District) throughout Santa Clara County, California. The program applies to three major activities, sediment removal, vegetation management, and bank protection, and a group of minor activities. The program is intended to be ongoing and can be modified as conditions change.

The District, as lead agency, prepared a Draft Environmental Impact Report (DEIR) under the California Environmental Quality Act (CEQA) to cover effects of the SMP. The public review period for the DEIR was from March 29, 2001 to May 14, 2001. The District notified 158 agencies, organizations and individuals of the availability of the DEIR, distributed copies of the DEIR to local libraries and the California Office of Planning and Research (State Clearinghouse), advertised the availability of the DEIR and the SMP documents in local newspapers, and posted the documents on its website. A public hearing before the District's Board of Directors was held on April 24, 2001 to receive comments on the DEIR. Comments were received from twenty-two persons or organizations, and 5 people commented at the public hearing.

This document is the Final Environmental Impact Report (FEIR) which responds to comments on the DEIR and revises the documents accordingly. This FEIR includes: a new Appendix F to the EIR which contains the comments received on the Draft EIR with responses from the District; a list of revisions to the March 28, 2001 DEIR and revised EIR tables and figures; and a list of revisions to an accompanying report, the March 2001 Draft SMP document, and revised tables. The FEIR incorporates the unrevised portions of the Draft EIR by reference herein.

In these lists of revisions, additions to the EIR or SMP text are indicated by (underlined text) and deletions are indicated by (~~strikeout text~~). Revisions are provided in order of their appearance in the documents, with revisions to the first chapter occurring before revisions to the second chapter, and so forth. Additional changes may be necessary to the SMP document (which is essentially the project description) after the District's Board approves the FEIR and chooses an alternative for the project.

Santa Clara Valley Water District

FINAL EIR

SUMMARY

August 21, 2001

II.A. SUMMARY - FINAL ENVIRONMENTAL IMPACT REPORT

The entire summary from the draft EIR has been reproduced here with additions under the FEIR indicated by *underlined text* *and deletions indicated by* ~~*strikeout*~~*.*

A. THE SANTA CLARA VALLEY WATER DISTRICT

The Santa Clara Valley Water District ("District") is a special purpose governmental agency responsible for providing water supply and flood protection for Santa Clara County, California in cost effective and environmentally responsible manner. For flood protection, all creeks in Santa Clara County with a watershed greater than 320 acres are in the District's jurisdiction.

B. PROPOSED PROJECT: THE STREAM MAINTENANCE PROGRAM

1. Changes in the Final Environmental Impact Report

Two major changes have been made in the Final Environmental Impact Report (FEIR) in response to comments: the Modified Pajaro River Basin Alternative is designated as the Preferred Alternative, and additional mitigation is proposed for certain types of bank protection work.

To reduce the environmental effects of the project to wetlands, the Preferred Alternative is revised to be the Modified Pajaro River Basin Alternative rather than the Multi-Year Program Alternative. Under the Modified Pajaro River Basin Alternative, herbicides would continue to be the primary method by which vegetation is managed in the Santa Clara Basin. Because of concerns regarding the gradual environmental change to wetlands, herbicide use in the Pajaro River Basin will be limited to upland areas and the control of non-native invasive plants.

As described in detail in revised Appendix E of the SMP, additional mitigation is proposed for bank protection projects which include rock or impervious structures. A minor additional change in the FEIR includes clarification of the Llagas Creek and Pajaro River areas which is defined as outside the scope of routine maintenance.

2. The Scope of the Stream Maintenance Program

The Stream Maintenance Program (SMP) describes a proposed program for conducting routine stream and canal maintenance. The program is intended to be ongoing and can be modified as conditions change. The program is intended to apply to three major activities, sediment removal, vegetation management, and bank protection, and a group of minor activities. The program is intended to cover these activities wherever they may occur in the District's jurisdiction, subject to several specific limitations.

The SMP incorporates several explicit steps for evaluating and reporting the effectiveness of the mitigation in the Program (see SMP Figure 3-1, SMP Resource Protection Protocol). This cycle of annual evaluation and improvement makes the SMP capable of adapting to new information and changing conditions to improve Best Management Practices (BMPs) effectiveness. It is expected that the full suite of resource protection incorporated in the SMP will allow the District to minimize environmental effects under a wide range of actual work needs.

3. Sediment Removal

Sediment removal occurs when an accumulation of sediment (1) reduces flood water conveyance capacity, (2) prevents facilities or appurtenant structures from functioning as intended, or (3) impedes fish passage and access to fish ladders. Thus the overall purpose is to ensure the proper function of District facilities.

The District estimates that it removes an average of 80,000 cubic yards of sediment on about 16 miles of channel per year in Santa Clara County. The actual quantity and location varies from year-to-year depending, in part, on rainfall of the past season. Cumulatively, sediment removal is projected for approximately 60 miles of streams. Sediment removal from canals is estimated to be less than 1000 cubic yards per year.

Sediment removal generally occurs between July 1 and October 15. A variety of heavy equipment is used. The average duration of a sediment removal project is 10 days. Appropriate temporary dams and pipes are used if water must be bypassed around the site during work. Excavated sediment is disposed at a landfill or other suitable site.

3. Vegetation Management

Vegetation management removes plant growth which blocks channels or which reduces flood flow. Vegetation management helps maintain the ability of channels to function as flood protection channels and also provides control of invasive, non-native plants and control of weeds at revegetation sites. The District also manages vegetation to protect levees and concrete linings from plant roots; to meet local fire codes; to provide visual clearance of a facility; and to provide access along maintenance roads. Depending on the original design and the characteristics of the channel, the frequency of vegetation management varies from annually to every few years.

In many creek sections, both sediment removal and ~~aquatic herbicide application~~ vegetation management are done in different years within the maintenance cycle. For example, in the year following sediment removal, herbaceous wetland vegetation may become established, and in the third year, may pose a potential flood hazard. Herbicide is applied to kill the vegetation, and herbicide application may continue in subsequent years before sediment accumulates until it eventually reaches a point where flood capacity is significantly reduced and sediment removal is again required. Or, other methods of vegetation management, such as mechanical or hand control methods, can be used instead of herbicides in the years between sediment removal.

Herbicides are used extensively and are preferred by reason of lower cost over mechanical and hand control methods. Currently, the District does not use herbicides in the Pajaro River Basin ("South County"), but would do so on a limited basis under the preferred alternative for the SMP. The herbicide use in the Pajaro River Basin would be limited to upland areas and (including adjacent upland areas, channel banks, channel benches, levee slopes, mainenance roads and firebreaks above the channel bottom) for control of invasive exotic plants ~~on approximately 56 miles of channel, 11 miles of which would be done in conjunction with sediment removal~~. Vegetation in these areas of the Pajaro River Basin is currently controlled by hand or mechanical methods.

Currently, the District uses glyphosate (Monsanto's Roundup® Pro and Aquamaster®, an aquatic formulation formerly marketed as Rodeo®) to control in-channel vegetation. Upland herbicide spraying applies to levees, unpaved maintenance roads, District right-of-way, and along some property lines. Pre-emergent herbicides control vegetation on levees and access roads by preventing the germination of weed seeds. The District uses a range of pre-emergent herbicides, including pendimethalin and chlorsulfuron. This particular application may change to reflect new restrictions under consideration by the California Department of Pesticide Regulation.

4. Bank Protection

Bank protection involves an action by the District to repair stream banks that are eroding or are in need of preventative erosion protection. The District may implement bank protection when the problem (1) causes or could cause significant damage to a property or adjacent property, (2) is a public safety concern, (3) adversely affects transportation or recreational use, (4) adversely affects water quality or beneficial uses, or (5) adversely affects riparian habitat. Based on past experience, the District estimates that an average of one linear mile of stream banks may be repaired each year spread over some 30 to 50 individual work sites. Work is usually done between July 1 and October 15.

Bank repairs may take several forms from installing "hard" structures (e.g., rock blankets, concrete, sack concrete, gabions) to "soft" structures (e.g., willow brush mattresses, log crib walls, pole plantings) or a combination of hard and soft structures. An important feature of the SMP is a programmatic approach to impact assessment and mitigation at bank protection sites that takes into account fisheries and riparian resources values (SMP Appendix E). The bank protection work would include both hardscape and softscape designs with mitigation provided at a 1:1 ratio by area of streambank for rock hybrid designs with plantings and a 3:1 ratio by area of streambank for impervious hardscape and other rock designs without plantings. On an average annual basis, no more than one-half mile of impervious hardscape designs will be installed. ~~The District will install no more than 50% of future bank protection projects under the SMP as hardscape.~~

5. Minor Activities

Minor maintenance activities include trash removal, installation of fences and gates; repairs to restore access roads and levees; grading small areas to improve drainage and reduce erosion; repair to existing structures (e.g. replacement of concrete linings and culverts); sediment removal at stream gages, outfalls, culverts, flap gates, tide gates, inlets, grade control structures, fish ladders, fish screens; graffiti removal; tree pruning along maintenance roads; irrigation, weeding, replanting and other maintenance at mitigation sites; removal of obstructions to flow at bridges, streamflow measuring stations, box culverts, storm drain outfalls and drop structures; removal of trees in danger of falling, fallen trees, and associated debris to maintain channel design capacity; and ground squirrel and rodent control with traps, smoke bombs, and pesticides.

6. Mitigation Incorporated in the Project

Chapter 4 of the SMP presents policies to protect resources during the implementation of routine stream maintenance activities. These policies provide guidance to District managers and staff in the environmental review, design, and implementation of individual stream maintenance projects. BMPs have been developed to implement each of these policies and to mitigate environmental impacts identified in the EIR.

a. Best Management Practices (BMPs)

The SMP has specifically developed BMPs applicable to routine stream maintenance, and these are incorporated into the SMP (SMP Appendix G). The BMPs provide mitigation for potential Water Quality, Vegetation, Wildlife and Fisheries, Land Use and Cultural Resources impacts. In the Final Environmental Impact Report, many of the BMPs have been revised in response to comments on the Draft Environmental Impact Report.

b. Wetland and Riparian Compensation

Over the long-term, the SMP has the potential to significantly affect the ecological and biological environment of Santa Clara County by cumulatively affecting wetland habitats, including tidal and freshwater wetlands and riparian habitats. Though measures in this EIR will avoid or reduce these impacts, the District acknowledges that it would not be to a less-than-significant level if compensatory mitigation were not provided.

The SMP includes a compensatory mitigation package to compensate for the significant residual impacts of sediment removal and vegetation management on in-stream wetlands and riparian vegetation. The compensatory mitigation package includes the following components: (1) tidal wetland restoration; (2) freshwater wetland creation;

(3) stream and watershed protection; and (4) control of giant reed. This mitigation is described in detail in Chapter 5 of the SMP.

Bank protection is addressed by the Programmatic Impact and Mitigation for Bank Protection protocol (SMP Appendix E) which compares the intensity of the work method and amount of hardscape against the environmental sensitivity of the work location. ~~Impact and mitigation are balanced between individual projects.~~ Appendix E provides a matrix for assessing the impacts and mitigation needed for bank protection measures. Additionally, a mitigation program has been added to the SMP for bank protection activities that include some form of hardscape or rock.

c. Special-Status Species

The avoidance and minimization measures incorporated in the project, described in SMP Chapter 4, are considered sufficient to reduce most, but not necessarily all, potential impacts of the SMP on special-status species to a less-than-significant level. Residual impacts are reduced to less than significant by specific provisions in the compensatory mitigation program described above.

7. SMP Exclusions

a. Activities Outside of Routine Maintenance are Excluded

In the course of CEQA review, the District determined that there were possible channel maintenance activities that may not be accommodated by the BMPs and other programmatic mitigation proposed as part of the SMP. The following maintenance activities are excluded from the SMP: sediment removal and vegetation management on stream reaches above the 1,000-foot elevation contour which is above the reservoirs; hardscape bank protection projects which occur in high quality fisheries habitat or existing high quality riparian habitat, and ~~initial removal of in-channel trees~~ any sediment removal, wetland vegetation control, or removal of in-channels trees in Llagas Creek downstream of ~~Luchessa Avenue~~ Highway 152 to the confluence with the Pajaro River and in the Pajaro River within Santa Clara County.

b. Other Activities are Excluded

Routine maintenance restores flood conveyance capacity to design levels, but does not increase design capacity. The District also plans and carries out flood protection projects as Capital Improvement Projects (CIP). The CIP are subject to separate engineering and environmental review which will take into account project specific impact and mitigation. Once the CIP is completed, maintenance at the project site will be incorporated into the SMP.

The SMP does not include certain other District maintenance activities such as percolation ponds, in-stream water infiltration barriers (summer dams), or dam and reservoir maintenance.

C. REGULATORY SETTING

1. CEQA

The District acts as the lead agency in fulfilling the requirements of the California Environmental Quality Act (CEQA).

The District has conducted routine maintenance of canals and channels used for water supply and stormwater conveyance in the past. Previously, routine activities have been subject to a case-by-case determination of potential for environmental impact followed by appropriate CEQA review.

The District is preparing this Program Environmental Impact Report (EIR) because: 1) The District is seeking new long-term regulatory permits for some routine maintenance activities from other agencies which require the District to prepare a CEQA review; 2) the District is proposing the use of herbicides for stream maintenance in the Pajaro Basin, an area where they are not currently used; and 3) the District can minimize future case-by-case review by considering the cumulative effects of all potential SMP activities in a single Program EIR.

A Program EIR, defined in CEQA Guidelines Section 15168, is used for a series of individual actions that are related "geographically, as logical parts in a chain of contemplated actions in connection with ... a continuing program, or as individual actions carried out under the same statutory or regulatory authority having generally the same environmental effects that can be mitigated in similar ways." Thus the SMP and this EIR emphasize the role that formally established programmatic mitigation will play in the District's future maintenance work.

The maintenance activities described in this program EIR are ongoing and will remain effective for an indefinite period of time as long as the nature of the work or environmental conditions do not substantially change. Because permits from other agencies will need to be renewed in 10 years, the District will reexamine the applicability of the Program EIR at that time and make revisions as needed.

2. Permits from Other Agencies

The District is applying for permits or other forms of regulatory approvals for those activities included in the SMP that are under the jurisdiction of the California Department of Fish and Game, the Regional Water Quality Control Board and the U.S. Army Corps of Engineers. It is the District's intent that the program and mitigation defined by the SMP would serve as the basis for state and federal permits and permit conditions. The program EIR will help state and federal agencies comply with their environmental review requirements.

D. ENVIRONMENTAL EFFECTS

The proposed program is the continuation of routine sediment removal, vegetation management and bank protection activities that have been carried out by the District for many years. Work is done on modified and unmodified channels. The need for ongoing maintenance has resulted from land use change in the watershed and from past modifications to once natural channels, first done to support agriculture, and later to provide flood protection and to accommodate transportation corridors for urban developments on the valley floor and low foothill areas of Santa Clara County. The maintenance program did not create the conditions that led to the need for maintenance, but routine maintenance is now needed to protect surrounding properties from flood and bank failure damage.

The environmental setting of the project – the environmental baseline from which project impacts are measured – is the present-day disturbed creek condition. In this context, most of the effects of maintenance are either insignificant or can be mitigated to less than significant by application of the BMPs included in the SMP.

The ~~Draft~~ Final Program EIR identifies ~~several~~ the following impact~~s~~ on biological resources as significant and unavoidable.

A) Sediment removal and vegetation management remove wetland and riparian (streamside) vegetation which provides habitat for fish and wildlife, including some special status species. Mitigation through the BMPs and the compensatory mitigation program appreciably reduce the magnitude of the wetland and riparian impact, but local effects near work sites may not be completely offset by mitigation away from the affected reach or in a different watershed. The local effect is fragmentation of wildlife habitat, with loss of habitat area, quality, and connectivity. The residual, unmitigated effect is considered adverse, significant, and unavoidable (Impact Bio-4).

~~B) Hardscape installation for bank protection has the potential to reduce riparian vegetation functions and values and associated wildlife and fisheries habitat. Placement of hardscape is a permanent change that can contribute to the increasing fragmentation of the natural bank landscape, which can affect wildlife that depend on stream corridors. Although implementation of the BMPs and programmatic mitigation (SMP Appendix E) would reduce the magnitude of impacts, there would likely be residual unmitigated impacts is some watersheds. The cumulative impacts from bank protection would thus remain significant and unavoidable (Impact Bio-5).~~

~~C) Repeated herbicide vegetation control has the effect of holding channel vegetation to a lower successional stage and changes the vegetation community (the plant and animal species present). Because the District has been using herbicides in North County for many years, the environmental baseline already shows this effect and further work under the SMP will not have a significant incremental impact. Resuming herbicide use in the Pajaro River Basin, however, will produce changes and a concomitant loss of stream vegetation functions and values, which would cause a significant cumulative adverse impact on wildlife habitat. (Impact Bio-6).~~

The impacts on wetland and riparian vegetation (Bio-4)~~ and impacts of herbicide use on the vegetation community (Bio-6)~~ would gradually abate if the practices were discontinued. ~~The cumulative effects of hardscape bank protection, however, are deemed irreversible.~~

The potentially significant effects found in the ~~Draft~~ Final Program EIR are listed in the Summary Table S-1, along with the BMP identification code number and the short title of the BMP. The full list of BMP's is attached as SMP Appendix G.

There are environmental effects that do not exceed the threshold of CEQA significance found in Chapters IV-C Land Use and IV-D Hazards, Public Health and Public Safety. While many of these effects will be further reduced or avoided by the implementation of the BMPs, these less than significant effects are not listed in Table S-1 or otherwise discussed in the Summary.

E. CUMULATIVE EFFECTS

Most sediment removal and vegetation management activities repeatedly take place on the same reaches of channels, in places most affected by past urbanization and channel alteration. As described above, the removal of wetland or riparian vegetation associated with the SMP is considered cumulatively significant. ~~The placement of additional hardscape within stretches of vegetated channel may also contribute to significant cumulative impacts in some watersheds over the years.~~

The District is currently planning and designing several flood protection projects. These Capital Improvement Projects are not part of the proposed SMP. In each case, these Capital Improvement Projects are subject to an environmental review and will as necessary mitigate incremental impacts on the channels to levels of environmental insignificance. There are potential cumulative environmental impacts associated with the compensatory mitigation projects for the SMP. Project specific environmental impacts of the mitigation projects will be addressed as part of the specific CEQA documents that will be prepared for ~~all~~ mitigation projects which require additional review.

F. ALTERNATIVES TO THE PROPOSED PROJECT

The alternatives analysis focuses on the ways that the long-term, cumulative impact of routine maintenance could be reduced. The proposed project is adoption of the SMP and implementation of its work performance protocol and programmatic mitigation. Under the FEIR, the Modified Pajaro River Basin Alternative is designated as the Preferred Alternative, rather than the Multi-Year Program Alternative. Therefore, t~~T~~he proposed SMP is characterized as the Modified Pajaro River Basin Alternative ~~"Multi-Year Program Alternative" and is the District's preferred alternative~~. The "No Project" Alternative represents the District not adopting the SMP and continuing the current practice of routine maintenance. The "No Work" Alternative projects conditions with no maintenance work conducted. All of the other alternatives evaluated in this Chapter focus on different ways to operate under an SMP. The main differences between the alternatives are 1) the amount of flood protection provided; 2) the amount of herbicide used; and 3) the amount of stream vegetation affected.

1. Alternatives Evaluated in EIR

1. **Multi-Year Program Alternative** The Multi-Year Program Alternative, which is described in detail in the SMP ~~and is the Preferred Alternative~~, includes sediment removal, vegetation management, bank protection and minor associated work. Projected levels of work are based on historical levels with minor adjustments made for foreseeable future changes. The program includes BMPs and a compensatory mitigation package. This programmatic EIR would serve as the major vehicle for evaluating future work under CEQA, and projects are expected to be covered by 10-year permits.

2. **Existing Program Alternative [No Project]** continues current maintenance criteria and practices without establishment of programmatic assessment and mitigation; continuation of case-by-case regulatory review.

3. **No Work Alternative** discontinues maintenance of streams, canals and other associated District facilities. Allows channels to form by themselves. Over time, these facilities could fill in with more sediment and vegetation and could reduce flood protection.

4. **No Herbicides Alternative** assumes no use of herbicides in routine stream or canal maintenance. Instead, vegetation will be managed by mechanical and hand methods in those areas in which herbicides are currently used in the Santa Clara Basin, and no herbicides will be used in the Pajaro River Basin.

5. **Modified Pajaro River Basin Alternative** is similar to the proposed Multi-Year Program Alternative except that it will not include the use of herbicides in stream channels of the Pajaro River Basin unless they are for the control of non-native, invasive plants. Instead, hand and mechanical methods will be used to control vegetation in the Pajaro River Basin stream channels. Herbicides would be used in adjacent upland areas in the Pajaro River Basin, and in channels and associated upland areas in the Santa Clara Basin and in canals. In the FEIR, the Modified Pajaro River Basin Alternative is the Preferred Alternative.

6. **Reduced Work Alternative** reduces the overall amount of routine stream maintenance work. Sediment removal and vegetation management would no longer take place in unmodified channels except 100 feet upstream and downstream of bridges or road crossings as needed and at stream gages, outfalls, trash racks and other in-stream structures. Herbicide use will resume in the Pajaro River Basin. Maintenance activities in canals would be the same as under the Multi-Year Program Alternative. Hardscape structures would not be included in the SMP with this alternative.

2. Environmental Comparison of Alternatives

The primary environmental difference among alternatives is in the magnitude of significant biological effects. Most other areas of potential impact are not significant for the proposed project, or can be reduced to insignificance by mitigation incorporated in the project, and do not vary appreciably among alternatives.

The No Work Alternative would eliminate all maintenance and would have significant public safety and economic impacts due to increased risk of flooding. Overall, there would be more vegetation in the stream channels.

The Existing Program Alternative would have less opportunity for regional compensation for cumulative maintenance impact. Although some mitigation could be imposed during individual project review, the SMP represents a significant opportunity to accomplish a regional aquatic, wetland, and riparian enhancement program.

Alternatives with reduced herbicide use (Existing Program, No Herbicides, Modified Pajaro River Basin, and Reduced Work) have the benefit of less long term vegetation change, but would result in a greater annual removal of vegetation. Because mechanical methods are less efficient than herbicides, regrowth between treatment is greater in areas treated only with mechanical methods so there is usually more vegetation present when the work is done.

The Reduced Work Alternative would reduce impacts to stream vegetation by one-fifth and would not have cumulative impacts from hardscape structures, however, it may reduce the amount of flood protection.

3. Alternative to Maintenance is Beyond Scope of SMP

Maintenance does not include activities such as raising levees to increase design flood capacity, reconfiguring stream channels, or limiting or modifying upstream land uses. While the need for maintenance and hence the impact of maintenance in some streams could be reduced by changing the channel condition, the necessary design and construction work is beyond the scope of routine maintenance and the proposed SMP.

Table S-1
Summary of Potentially Significant Impacts and Mitigation Incorporated into the Proposed SMP - Modified Pajaro River Basin Alternative

Key to Table S-1:

Impact:	The impact number and short description from EIR Chapter IV.
BMP Code	The code number cross referencing BMPs in EIR Chapter IV and SMP Appendix G, Best Management Practices listing.
Short Title	Short title of the BMP
Activity	Category of maintenance activity most affected: SR = Sediment Removal; VM = Vegetation Management; BP = Bank protection; MM = Minor Maintenance.

Note: the full text of the BMPs can be found in Appendix G of the SMP.

Impacts	BMP Code	Short Title	Activity
Unavoidable Adverse Impacts that would Remain after Mitigation			
IV-B. Biology			
Impact Bio-4: The cumulative impact of sediment removal and vegetation management would fragment wildlife habitat.	1.13	Prevent Scour Downstream of Sediment Removal	SR
	2.1	Minimize vegetation removal	All
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years at Selected Sites	SR
	Off-site Compensatory Mitigation		
Impacts That Would Be Mitigated to Less than Significant			
IV-A. Geomorphology			
Impact Geo-1. Sediment removal in certain locations may increase erosion downstream of the removal site.	1.13	Prevent Scour Downstream of Sediment Removal	SR
Impact Geo-2. Elimination of in-channel vegetation may increase sediment accumulation downstream.	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
Impact Geo-3. Removal of vegetation may increase local erosion.	1.16	Minimize Local Erosion increase from In-channel Vegetation Removal	VM
Impact Geo-4. Bank protection measures can direct flows downstream, resulting in new erosion and bank instability problems.	1.15	Prevent Erosion Downstream of Bank Protection Sites	BP
Impact Geo-5. Removal of woody debris may reduce channel bed diversity.	3.9	Retain Woody Materials and Vegetation	BP, MM
IV-B. Biology			
Impact Bio 1: Sediment removal and vegetation management would impact in-stream wetland and riparian vegetation.	1.13	Prevent Scour Downstream of Sediment Removal	SR
	2.1	Minimize vegetation removal	All

Impacts	BMP Code	Short Title	Activity
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years	SR
	Off-site Compensatory Mitigation		
Impact Bio-2: The project could result in removal of heritage-sized trees.	2.1	Minimize vegetation removal	All
	2.2	Minimize Stream Access Impacts	SR, BP
	2.8	Replace heritage trees	BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
Impact Bio-3: Program implementation could introduce invasive plant species into native, riparian, or wetland habitat areas.	2.1	Minimize vegetation removal	All
	2.5	Planting	BP
	2.6	Mulching	BP
	2.7	Seeding	BP
Impact Bio-5: Bank protection would cause a loss of riparian vegetation functions and values, which would cause a significant cumulative adverse impact on wildlife and fisheries habitat. Note: with mitigation provided under the FEIR, this impact is now moved into the Mitigated to Less than Significant category.	2.1	Minimize vegetation removal	All
	2.3	Minimize Hardscape in Bank Protection Design	BP
	2.5	Planting	BP
	3.5	Minimize Loss of Aquatic Habitat from Bank Protection work	BP
	3.14	Maintain or Provide Escape Cover	BP
	1:1 and 3:1 offsite mitigation plantings for planted rock and impervious/unplanted rock designs, respectively		
Impact Bio-6: The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife. Note: with limitations to the use of herbicides in the Pajaro Basin under the FEIR, this impact is now moved into the Mitigated to Less than Significant category.	2.1	Minimize vegetation removal	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.18	Herbicide use in aquatic areas	VM
	3.19	Develop a biodiversity monitoring program	All
	Off-site Compensatory Mitigation		

Impacts	BMP Code	Short Title	Activity
Impact Bio-7: Chemical use by the District, especially for rodent control, could adversely affect non-target species.	2.1	Minimize vegetation removal	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.18	Herbicide Use in Aquatic Areas	VM
	3.2	*Minimize Herbicide Impacts on Non-target species*	VM
	3.21	Minimize Rodent Control Impacts on Non-target Species	MM
	4.7	Herbicide Use Requirements	VM
Impact Bio-8: Maintenance activities could introduce invasive wildlife species.	3.4	Mitten Crab Control Measures	SR
Impact Bio-9: Maintenance activities could directly harm nesting species protected under the Migratory Bird Treaty Act and other statutes.	2.1	Minimize vegetation removal	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.19	Develop a Biodiversity Monitoring Program	All
Impact Bio-10: Maintenance work conducted in channels could substantially interfere with migration, spawning, incubating, or rearing habitat for native aquatic species.	2.2	Minimize Stream Access Impacts	SR, BP
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.11	Avoid Dewatering an Entire Isolated Stream Reach	SR, BP
	3.12	Maintain Low-flow Fish Passage	SR, BP
	3.13	Remove Temporary Fills as Appropriate	SR, BP
	3.14	Maintain or Provide Escape Cover	SR, BP
	3.15	Restore Riffle and Pool Configuration of Channel Bottom	SR, BP

Impacts	BMP Code	Short Title	Activity
	3.16	Restore Spawning Gravels in Work Site Areas	SR, BP
	3.17	Reuse Sediments and Gravels As Appropriate	SR
Impact Bio-11: Temporarily suspended sediment can adversely affect aquatic or semi-aquatic species.	1.1	Conduct Work During Low Flow Periods	All
	1.2	Tidal Work Areas	SR
	1.3	Dewater/ Bypass Water at Non-tidal Sites	SR, BP
	1.4	Avoid Erosion When Restoring Flows	SR, BP
	1.5	Erosion and Sediment Control Measures	BP
	1.6	Use of Wheel and Track Mounted Vehicles in Stream Bottoms	SR, BP
	1.7	Pump/ Generator Set Operations and Maintenance	SR, BP
	1.8	Handle Sediments So As to Minimize Water Quality Impacts	SR
	1.9	Soil Stockpiles	SR
	1.12	Groundwater Management	SR, BP
	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
	1.15	Prevent Erosion Downstream of Bank Protection Sites	BP
	2.2	Minimize Stream Access Impacts	SR, BP
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
Impact Bio-12: Sediment Removal would adversely affect special-status species.	1.3	Dewater/ Bypass Water at Non-tidal Sites	SR, BP
	1.4	Avoid Erosion When Restoring Flows	SR, BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All

Impacts	BMP Code	Short Title	Activity
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	All
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years	SR
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.1	*Conduct In-Channel Work During the Dry Season*	SR, BP
	3.11	Avoid Dewatering an Entire Isolated Stream Reach	SR, BP
	3.12	Maintain Low-flow Fish Passage	SR, BP
	3.15	Restore Riffle and Pool Configuration of Channel Bottom	SR, BP
	3.16	Restore Spawning Gravels in Work Site Areas	SR, BP
	4.5	Vehicle and Equipment Cleaning	All
	6.1	Spill Prevention	All
	6.4	Vehicle and Equipment Fueling	All
	6.5	Vehicle and Equipment Maintenance	All
Impact Bio-13. Vegetation Management would adversely affect special-status species.	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
	2.1	Minimize vegetation removal	All
	2.2	Minimize Stream Access Impacts	SR, BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All

Impacts	BMP Code	Short Title	Activity
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	SR, BP
	3.3	Avoid serpentine habitat	All
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
	3.18	Herbicide Use in Aquatic Areas	VM
	3.2	Minimize Herbicide Impacts on Non-target species	VM
	4.7	Herbicide Use Requirements	VM
Impact Bio-14. Bank Protection would adversely affect special-status species.	1.5	Erosion and Sediment Control Measures	BP
	2.3	Minimize Hardscape in Bank Protection Design	BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	2.5 2.6 2.7	Planting, Mulching, Seeding	BP
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	All
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.14	Maintain or Provide Escape Cover	BP

Impacts	BMP Code	Short Title	Activity
	3.19	Develop a Biodiversity Monitoring Program	All
Impact Bio-15: Minor Stream Maintenance Activities would adversely affect special-status species.	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	SR, BP
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
	3.21	Minimize Rodent Control Impacts on Non-target Species	MM
IV-. D Public Safety			
Impact WQ-1. Erosion of mercury containing sediment.	1.10	Avoid Exposing Soils with High Mercury Levels	BP
Impact Haz-1. Preventing exposure of mercury during bank protection.			
IV-E. Cultural			
Impact Cul-1: Disruption of Cultural Resources	7.1	Discovery of Cultural Remains or Historic Artifacts	All
Impact Cul-2: Disruption of Native American Burials	~~7.1~~ 7.2	~~Discovery of Cultural Remains or Historic Artifacts~~ Review of Projects with Native Soil	All

Santa Clara Valley Water District

FINAL EIR

APPENDIX F - PUBLIC RESPONSE TO COMMENTS

August 21, 2001

Appendix F

Public Comments and Responses

A. Introduction

This appendix consists of written comments on the Stream Maintenance Program (SMP) Draft Environmental Impact Report (EIR) and the Santa Clara Valley Water District's (District) responses.

The public review period was from March 29, 2001 to May 14, 2001. The District mailed copies of the Notices of Draft EIR Availability (usually with copies of the EIR and SMP documents attached) to 158 agencies, organizations and individuals. Copies were distributed to 18 local libraries, and electronic copies were made available on the District's website. The California Office of Planning and Research (State Clearinghouse) distributed copies to State agencies. A Notice of Availability of the EIR was published in the San Jose Mercury News, **Gilroy Dispatch, Morgan Hill Times** and filed with the County Clerk. District staff announced availability of the documents, date of the public hearing, and described the project at meetings with the following community organizations: Regional Water Quality Control Board-Watershed Management Initiative, Bay Area Stormwater Management Agencies Association, Santa Clara County Association of Planning Officials, League of Women Voters, and Municipal Public Work Officials of Santa Clara County.

The following persons or organizations commented on the EIR. Codes used to organize comments are shown before the listing of each person or organization. The comment letters are attached, followed by responses after each letter.

1. **AU** — Audubon Society, letter from Jennifer Perez, Conservation Assistant, 5/15/01
2. **CDFG** — California Department of Fish and Game, letter from Robert Floerke, Regional Manager, Central Coast Region, 5/16/01
3. **CHRIS** — California Historical Resources Information System, letter from Kathleen Thorne for Leigh Jordan, Coordinator, 05/01/01
4. **CP** — Santa Clara County Parks and Recreation, letter from Kelly Gibson, Park Planner, 5/14/01.
5. **EPA** — U.S. Environmental Protection Agency, letter from Tim Vendlinski, Chief, Wetlands Regulatory Office, 5/15/01
6. **FOG** — Friends of Guadalupe, letter from Nancy Bernardi, 5/13/01
7. **FWS** — U.S. Fish and Wildlife Service, letter from Dale Pierce, Acting Field Supervisor, 5/9/01
8. **JPA** — San Francisquito Creek Joint Powers Authority, letter from Cynthia D'Agosta, Executive Director, 5/22/01
9. **JS** — Electronic mail from Jim Stallman, Saratoga, 5/15/01
10. **JU** — Jan Unland, telephone message to Cindy Roessler, 5/14/01
11. **KI** — Frank and Cynthia King, residents of Morgan Hill, electronic mail to Director Tony Estremera, 5/7/01
12. **LL** — Libby Lucas, Los Altos, electronic mail, 5/14/01
13. **LWV** — League of Women Voters of Santa Clara County, letter from Ann Coombs, 5/4/01
14. **MP** — Midpeninsula Regional Open Space District, letter from Cathy Woodbury, Planning Manager, 5/14/01
15. **NHI** - Natural Heritage Institute, electronic mail from Richard Roos-Collins, Attorney-at-Law, 6/13/01

16. **PA** — City of Palo Alto, letter from Glenn Roberts, Director of Public Works, 5/9/01
17. **RWQ-CC** — Regional Water Quality Control Board, Central Coast Region, letter from Roger Briggs, Executive Officer, 5/11/01
18. **RWQ-SF** — Regional Water Quality Control Board, San Francisco Bay Region, letter from Bruce Wolfe, Chief, Watershed Management Division, 5/14/01
19. **SFT** — Santa Clara County Streams For Tomorrow, letter from Keith Anderson, Environmental Advocate, 5/14/01
20. **SJ** — City of San Jose, letter from Janis Moore, Planner II, 5/11/01
21. **TM** — Trish Mulvey, Cofounder, CLEAN South Bay, 5/13/01
22. **WW** — Western Waters Canoe Club, letter from L. M. Johmann, 5/11/01

A public hearing on the project was held before the District Board of Directors on April 24, 2001 to receive public comment. The following persons made verbal comments at the public hearing:

23. **PH:GZ** — Greg Zlotnik, District Board of Directors
24. **PH:MIL** — Mike McNeeley, City Engineer, City of Milpitas
25. **PH:PA** — Glenn Roberts, Director of Public Works, City of Palo Alto
26. **PH:SFT** — Keith Anderson, Santa Clara County, Streams for Tomorrow
27. **PH:SS** — Sig Sanchez, District Board of Director At-Large

Many comments addressed concerns regarding the following topics: Alternatives, Aquatic Herbicides, and Geomorphology. Therefore, the responses to comments starts with master responses addressing these topics in a comprehensive manner. For those responses that refer to Best Management Practices (BMPs), see revised Appendix G of the SMP. Revised tables and figures are also included in the list of revisions to the EIR and SMP.

Copies of the comment letters and a summary of comments at the public hearing are attached in alphabetical order and are marked with codes indicating each separate comment for which a response is provided. Unmarked sections of the comment letters contain information which is considered in the responses to comments.

> Indentation of a paragraph in the left margin as shown in this paragraph as an example, indicate where the response incorporates a portion of the EIR or SMP text for revision. Additions to the EIR or SMP text are indicated by (underlined text) and deletions are indicated by (~~strikeout text~~).

B. Master Responses

1. Master Response Regarding Alternatives

In response to the comments, two major changes have been made in the Final Environmental Impact Report (FEIR): the Modified Pajaro River Basin Alternative has been designated as the Preferred Alternative, and additional mitigation is proposed for certain types of bank protection work. To reduce the environmental effects of the project to wetlands, the Preferred Alternative is revised to be the Modified Pajaro River Basin Alternative rather than the Multi-Year Program Alternative. In California Environmental Quality Act (CEQA) terminology, the Modified Pajaro River Basin Alternative has become the proposed "project". The

difference between the Modified Pajaro River Basin Alternative and the Multi-Year Program Alternative is that in the former, herbicides will only be used in channels of the Pajaro River Basin to control non-native invasive species. As described in detail in revised Appendix E of the SMP, additional mitigation is proposed for bank protection projects which include rock or impervious structures. A minor additional change describing this alternative in the FEIR includes clarification of the portion of Llagas Creek and the Pajaro River area which are defined as outside the scope of routine maintenance.

As a result, changes need to be made to descriptions in several chapters of the EIR: **in Chapter V — Alternatives; the Vegetation Management description and the Bank Protection description in Chapter II — Project Description; Activities Outside the Scope of Routine Maintenance in Chapter II — Project Description; the Geomorphic Assessment in Chapter IV-A; the Biologic Assessment in Chapter IV-B; and** CEQA Questions in Chapter VI. **These revisions are shown in the subsections below.**

a. Alternative Description

The following changes are made to the Alternatives Chapter of the EIR (first paragraph of page V-1) to describe the Modified Pajaro River Basin Alternative as the Preferred Alternative.

> The alternatives analysis focuses on the ways that the long-term, cumulative impacts of routine maintenance could be reduced. The proposed project is adoption of the Stream Maintenance Program (SMP) and implementation of its work performance protocol and programmatic mitigation. The proposed ~~SMP is characterized as~~ project is the Modified Pajaro River Basin Alternative in the FEIR ~~Multi-Year Program (Preferred Alternative)~~. The Existing Program Alternative represents the District not adopting the SMP and continuing the current practice of routine maintenance on an annual basis. The No Work Alternative would eliminate all maintenance in streams and canals by the District within its jurisdiction. The Reduced Work Alternative would eliminate work in unmodified channels, and does not include hardscape bank protection. The No Herbicides Alternative and the Modified Pajaro River Basin Alternative reduce the amount of area treated with herbicides compared to the Multi-Year Program Alternative.

The following changes are made to the fifth paragraph of page V-1 of the EIR:

> The proposed project is the SMP for Routine Maintenance Activities on District facilities and is referred to as the Modified Pajaro River Basin Alternative ~~Multi-Year Program~~. The SMP would apply BMPs to avoid or minimize impacts and a regional mitigation program to compensate for unavoidable impacts at individual maintenance sites. The EIR examines a series of alternatives to meet statutory requirements and to evaluate the possibility that the effects of the proposed project could be lessened or avoided.

With the designation of the Modified Pajaro River Basin Alternative as the Preferred Alternative in the FEIR, the following changes are made to remove the preferred alternative designation from the Multi-Year Program Alternative in the Alternatives Chapter.

On page V-2, third paragraph of the EIR:

~~As required by CEQA, alternatives are compared to the Multi-Year Program (Preferred Alternative), as described in detail in Chapter II.~~ Refer to Revised Tables V-1 and V-2 which provide information for each alternative. The proposed project includes sediment removal, vegetation management, bank protection, and minor work activities throughout the District's jurisdiction (and below the 1000-foot elevation contour).

In the second paragraph of page V-7 of the EIR, the following revisions are made:

1. Multi-Year Program ~~(Preferred Alternative)~~

The Multi-Year Program, ~~which is the Preferred Alternative and is described in detail in the SMP,~~ includes sediment removal, vegetation management, bank protection and minor associated work. Projected levels of work are based on historical levels with minor adjustments made for foreseeable future changes. The extent of work under the Multi-Year Program would be ~~61~~ 58 miles of sediment removal and ~~258~~ 246 miles of channel vegetation management. The extent of maintenance is defined as the total length or area on which stream maintenance will repeatedly take place.

Likewise, the description of bank protection work of the Multi-Year Alternative is revised in the fifth paragraph of page V-7 of the EIR:

> The bank protection work would include both hardscape and softscape designs with a programmatic exchange of mitigation between designs which ~~tend to~~ ~~limit~~ reduce or eliminate biotic potential and those which ~~tend to retain~~ enhance it. Refer to this EIR Chapter 2, Project Description and Appendix E of the SMP for details on the mitigation program for bank protection activities.

The third paragraph on page V-9 of the EIR regarding the Existing Program Alternative is revised:

> See Revised Table V-4 for a comparison on cost estimates for each alternative. ~~The same amount of flood protection would be provided as under the Multi-Year Program, however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management; average annual costs would increase approximately $2 million or 19% compared to the Multi-Year Program (Table V-4).~~

The second paragraph on page V-11 of the EIR regarding the No Herbicides Alternative is revised:

> The same BMPs would be applied except for those which are relevant only to herbicide use. The mitigation program would be the same as for the Modified Pajaro River Basin Alternative ~~Multi-Year Program~~. The approach to multi-year CEQA review and permits would be the same as under the Modified Pajaro River Basin Alternative ~~Multi-Year Program~~. The same amount of flood protection would be provided as under the Modified Pajaro River Basin Alternative ~~Multi-Year Program, however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management, average annual costs would increase approximately $8 million or 66% compared to the Multi-Year Program (Table V-4)~~. See Revised Table V-4 for a comparison on cost estimates for each alternative.

The description of the Modified Pajaro River Basin Alternative is revised in Chapter V to recognize that is now designated as the preferred alternative (page V-11 of the EIR):

5. Modified Pajaro River Basin Alternative (Preferred Alternative)

This Alternative is similar to the ~~proposed project~~ the Multi-Year Program Alternative except that it will not include the use of herbicides in stream channels of the Pajaro River Basin unless they are for the control of non-native, invasive plants. Instead, hand and mechanical methods will continue to be used to control vegetation in the Pajaro River Basin stream channels. Herbicides will be used on 157 acres in adjacent upland areas in the Pajaro River Basin, and in channels, canals and associated upland areas in the Santa Clara Basin.

The Modified Pajaro River Basin Alternative includes the same amount of sediment removal, vegetation management, bank protection and minor activities as the Multi-Year Program.

Initial impacts to stream vegetation would consist of ~~116~~ 106 acres of freshwater wetland, 30 acres of tidal wetland, and ~~78~~ 66 acres of riparian vegetation and this amount would not change over time since there is no conversion of vegetation management types in the channel. This would result in a greater amount of in-channel vegetation in the Pajaro River Basin than under the Multi-Year Program Alternative and would provide a beneficial effect to the streamside habitat because vegetation would be trimmed back instead of being killed, allowing wildlife cover, roosting, feeding and nesting opportunities. This would also result in less streamside habitat fragmentation caused by vegetation management activities. However, the annual amount of stream vegetation removed in the Pajaro River Basin would be greater than for the Multi-Year Program Alternative over the long term, and the method would be temporarily more disruptive to resident wildlife.

The BMPs, ~~compensatory mitigation~~, and approach to multi-year CEQA review and permits would be the same as under the Multi-Year Program Alternative. Because the impacts are less, the Modified Pajaro River Basin (Preferred Alternative) would include the following compensatory mitigation program: restoring 30 acres of tidal wetland, creating 14 acres of freshwater wetlands, preserving and restoring 820 to 1,080 acres of stream and watershed, and control of 125 acres of giant reed. The same amount of flood protection would be provided as under the Multi-Year Program Alternative, however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management, average annual costs would increase ~~approximately $2 million or 17% compared to the Multi-Year Program (Table V-4)~~. See Revised Table V-4 for a comparison on cost estimates for each alternative.

The third paragraph of P. V-13 of the EIR regarding the Reduced Work Alternative is revised as follows:

See Revised Table V-4 for a comparison on cost estimates for each alternative. ~~Average annual costs would decrease approximately $500,000 or 4% compared to the Multi-Year Program (Table V-4).~~

Since the preferred alternative is revised, this changes the comparison of other alternatives to it. See these revised EIR tables which compare the alternatives: Revised Table V-1 *Definition of Alternatives*, Revised

Table V-2 *Alternatives Comparison of Initial Stream Vegetation Impacts,* Revised Table V-3 *Comparison of Alternatives by Impacts,* and Revised Table V-4 *Cost Comparison of Alternatives.*

b. Vegetation Management Description

The following changes are made to the description of the Vegetation Management Program in the Project Description Chapter of the EIR (pages II-8 through II-18) in response to the Modified Pajaro River Basin Alternative being designated as the Preferred Alternative in the FEIRs. Revised tables and figures are included in the list of revisions to the EIR. Similar changes are made to the SMP document and are included in the list of revisions to the SMP.

3. Vegetation Management

Management of vegetation in and adjacent to creeks and canals is necessary to maintain the ability of channels to function as flood protection facilities ~~and canals to transport water~~. Dense vegetation can adversely affect the ability of the channel to contain the flow of flood waters for which it was designed. Therefore, most flood protection facilities require some type of periodic vegetation control. Depending on the original design and the characteristics of the channel, the frequency of vegetation management varies from annually to every few years. Revised Figure II-3 shows the Projected Channel Vegetation Work Areas. Revised Table II-4 lists the extent of projected work.

Vegetation management for environmental purposes includes control of invasive, non-native plants. The District also uses vegetation management to control weeds at revegetation sites to increase the number of native trees and shrubs which survive and to more quickly establish a self-sustaining plant community which provides wildlife habitat.

The District manages vegetation for other purposes including the protection of levees, and concrete linings from plant roots; meeting local fire codes requiring the control of combustible weeds and grasses; providing visual clearance to inspect the condition of a facility; and providing access along maintenance roads.

Over the past 30 years, the District has continually revised vegetation management approaches on District facilities. The three basic methods of vegetation management are: hand removal (chain saws, weed-eaters, etc.); mechanical (mowing and discing); and chemical control through the use of herbicides. A method or combination of methods is chosen for each site depending on the maintenance requirements of the facility. Efficiency, economics and the protection of public health and environmental resources are all considered in the selection of methods.

Some green waste is mulched and stored for later use at a District property near Camden and Meridian Avenue in south San Jose. The balance is delivered to an area landfill that composts green waste. Tree logs are occasionally reused as "root wads", in order to create a woody debris habitat for aquatic species. This is done on a project-specific basis, and there is no location where logs are stored.

a. In-channel Vegetation Management

In-channel vegetation management occurs on the channel bottom of the creek or canal where seasonal aquatic conditions can create conditions suitable for wetland or riparian vegetation. Portions of the channel above the bottom, such as benches or channel banks or slopes, which do not support seasonal aquatic conditions are not included as part of in-channel vegetation management (see Upland Vegetation Management below). The 2 types of in-channel vegetation management (also called channel vegetation management) are herbicide application and hand removal of vegetation. Herbicide use is described in more detail in the "Herbicides Used" section below.

~~Hand removal of vegetation is undertaken in a few locations where it is not possible to access the area with spray equipment.~~ Weeds, shrubs and trees are removed by the hand removal method where it is not possible to access the area with spray or mowing equipment. Trees with a trunk diameter up to 6" dbh are removed by the hand removal technique, although the actual number of trees removed by this method is very limited. In some cases, the vegetation is sprayed with herbicides, and then approximately 6 months later, the dead material is removed by hand removal methods. This latter category of work is referred to as follow-up hand removal. Follow-up hand removal of dead vegetation is only necessary when herbicide spraying is new to an area and there is a large volume of vegetation created in the first year or two. In subsequent years, the amount of vegetative regrowth is reduced and follow-up hand removal is necessary much less frequently.

b. Upland Vegetation Management

Upland vegetation management occurs on upland areas associated with creeks and canals including all land above the channel bottom such as the levee or bank top and slopes, benches and maintenance roads inside the levee, and adjacent land outside the levee. These upland areas are not seasonally inundated by water so as to create conditions for wetlands, and are vegetated with upland plants, primarily annual grasses or shrubs. The five types of vegetation management in upland areas are discing, mowing, herbicide application, hand removal, and removal of overhanging growth.

Upland discing occurs on upland parcels outside of the streambanks and is conducted to create firebreaks. Upland mowing consists of operating a flail mower to eliminate or reduce grasses that would cause a fire hazard during the summer. Mowing can occur from one to three times annually at each location, usually between May and October. Mowing is conducted on the inside slope of some levees or streambanks.

Upland herbicide spraying is used on levees, unpaved maintenance roads, and along some property lines. On levees, herbicides are used primarily to keep woody vegetation and broadleaf weeds from becoming established where they will interfere with flood flow capacity, damage the levees, or hinder their inspection. Weeds and grasses are sprayed on maintenance roads to clearly define and keep open the access route. Herbicide spraying along property lines assists in establishing a firebreak. Pre- and post-emergent herbicides are sprayed from a truck-mounted rig or by a controlled drop applicator.

Hand removal of vegetation is conducted in upland areas where mowers cannot access, and herbicides are either not practical due to steep terrain or not allowed. Hand removal of vegetation is generally used in upland areas along property lines to establish fire breaks. Removal of overhanging growth consists of pruning trees branches that impede access roads or hang over fence lines.

c. *Extent of Vegetation Management Work*

The frequency of vegetation management activities varies from semiannually to once every several years, depending on the method used. Generally, ~~channel herbicide and channel hand removal of vegetation are~~ vegetation management in channels is conducted once every year. Channel herbicide work is conducted throughout the summer dry season whereas channel hand removal is conducted near the end of the growing season. Seasons of work for vegetation management are generally undertaken in the following time periods. Some adjustments to these time periods can occur on some project sites where provisions regarding the protection of nesting birds and anadromous fish are followed as provided in BMPs 3.2 and 3.10. Herbicide treatment is undertaken in the channel from July 1 through October 15. Upland herbicide work is undertaken from October 15 through June 30. Removal of woody saplings by hand is undertaken July 1 through March 1. Hand removal of herbaceous wetland vegetation is undertaken in November and December.

Vegetation management occurs in creeks, canals, and adjacent uplands. On average, vegetation management work is annually performed on approximately 4,000 acres. Within this larger work area, the targeted treatment area consists of approximately 2,000 acres. These totals include the following approximate levels of activity:

- ~~923~~ 866 acres of vegetation management work is conducted in ~~222~~ 212 miles of stream channels with ~~132~~ 120 acres of the total actually receiving treatment (585 work acres or 75 acres of treated area on 166 miles in the Santa Clara Basin, and ~~338~~ 280 work acres or ~~57~~ 45 acres of treated area and ~~56~~ 46 miles in the Pajaro River Basin);
- 23 acres on which vegetation management work is conducted on 27 miles of canals with 6 acres of the total actually receiving treatment; and
- ~~3,021~~ 3012 acres of uplands on which vegetation management work is performed, with ~~1,885~~ 1894 acres actually receiving treatment. Upland vegetation management is outside of the area of inundation, and generally has a buffer of grass or vegetation on the slopes between the right-of-way and the stream.

Vegetation management activities are consistent from year-to-year. Slight variations in flood protection activities occur due to weather patterns. For example, historically, increases in some work activities have occurred during drought years, with decreases in some activities occurring during flood years. This is primarily due to the scouring effects of flood flows cleaning out areas of vegetation. Right-of-way activities remain constant regardless of these weather patterns. Revegetation maintenance reduces 3 to 5 years after initial installation of a revegetation site.

d. *Herbicides Used*

Herbicides often are more effective at controlling vegetation than mechanical or hand removal methods. This is because of the ability of the herbicide chemicals to spread into and damage the roots of the target plants, thus preventing resprouting. When treated with mechanical or hand methods, some woody plants, such as willows, will resprout with multiple stems. The multiple sprouts result in a greater flood protection problem and require annual control. With herbicides, annual retreatment is often necessary, but the treatment area is greatly reduced, as only a small percentage of regrowth will occur. As a result, the SMP would continue to use herbicides as the primary method by which vegetation is controlled in ~~channels and on stream banks~~ the Santa Clara Basin. Because of concerns regarding the gradual environmental change to wetlands, herbicide use in the Pajaro River Basin will be limited to the following situations: upland areas including channel banks, levee slopes, maintenance roads and fire breaks above the channel bottom; and upland and channel bottom areas for the control of invasive exotic plants.

Herbicides are not broadcast sprayed across the channel, but are selectively sprayed at the herbacious or woody plants targeted for removal by the design parameters of each particular stream reach. In streambeds where the removal of woody plants is required, only saplings no greater than 2" in diameter at breast height (dbh) are removed in the target area. In upland areas, herbicides are sprayed on maintenance roads to provide a clear access area and on levee slopes to eliminate broadleaf weeds.

The District staff routinely reviews new and changed herbicide formulations and changed label limitations. New products are selected and old products are discontinued due to the changing availability and suitability of the products for District use. The District uses criteria for product selection that minimize worker and public health risk and avoids environmental impact. The District will not use herbicides that are:

1. designated as a restricted material by the United States Environmental Protection Agency (EPA) based on toxicity or environmental effect,
2. on California Department of Pesticide Regulation (CDPR) "list A" for demonstrated ground water contamination.

A variety of sources of information are available to instruct the District in its choice of herbicides. A literature review was conducted for the SMP Program EIR, attached as Appendix H, District Use Pesticide Literature Review. The literature review presents use, health and environmental information about the principal herbicide products that the District currently uses. In the future, new products will be subjected to a similar review and that information will be used, along with general product information and site-specific conditions to determine whether and how a product should be used.

The District uses herbicides according to the label directions and for uses approved by the EPA and the CDPR. Currently, the primary herbicide which the District uses to control in-channel vegetation is glyphosate, a nonselective broad spectrum herbicide. Glyphosate products include Monsanto's Roundup® Pro and Monsanto's Aquamaster® (an aquatic formulation formerly marketed as Rodeo®). Aquamaster® is approved for use on and near open water, whereas Roundup® Pro is not approved for application directly in water or to areas where surface water is present. Roundup® Pro contains glyphosate, a surfactant, and water. Surfactants aid the ability of an herbicide to penetrate the surface of the vegetation. Aquamaster® and Rodeo® contain glyphosate and water without a surfactant. The District generally adds the surfactants R-11® or Target Pro-Spreader when using either Aquamaster® or Rodeo®.

Pre-emergent herbicides control vegetation on levees and access roads by preventing the germination of weed seeds. The District uses a range of pre-emergent herbicides, including pendimethalin and chlorsulfuron.

The CDRP has recently proposed new restrictions on use of certain pre-emergent herbicides including several which the District uses (sulfometuron-methly, chlorsulfuron, oryzalin and isoxaben). These proposed restrictions are intended to minimize potential ground and surface water contamination. The District is currently reviewing the recent proposal and will determine whether its Herbicide Program will need to be adjusted. See chapter IV-D Hazards, Public Health and Safety for more information. Herbicides which are used by the District for routine maintenance in channel and upland areas are shown in Revised Table II-5.

e. ~~Herbicide Use in South County~~ Vegetation Management in the Pajaro River Basin

The SMP includes the limited ~~reinstatement of the~~ use of herbicides as part of the Vegetation Management Program in the Pajaro River Basin. Herbicides are currently used as part of the Vegetation Management Program in the Santa Clara Basin, but their use was discontinued in the Pajaro River Basin (South County) at the direction of the District Board in 1974 because of complaints regarding drifting of herbicides into agricultural fields. In 1979, the District considered reinstating a Herbicide Program in the Pajaro River Basin. At that time, there was a general concern in the community over the use of herbicides, particularly the use of the herbicide 2,4-D and after public hearings, the District decided not to reinstate the use of herbicides in the Pajaro River Basin. As a result, the use of herbicides was also ~~excluded~~ limited on mitigation plantings of the new federally sponsored flood protection projects on Llagas Creek in the Pajaro River Basin.

Since that time, the District has revised its Herbicide Program to address environmental, health risk and public safety concerns, but at the same time recognize that herbicides are a cost effective means for maintaining flood protection and water supply facilities. Many of the improvements made to the District's Herbicide Program are described below:

- In 1980, the District discontinued the use of the herbicide 2,4-D.
- In 1986, the District switched to using herbicides in the sulfonylurea family which are applied at rates of ounces per acre rather than previous herbicides which were applied at rates of pounds per acre. This step not only reduced the overall amount of herbicides being applied throughout the County but also relied on using herbicides with a lower toxicity.
- In 1988, the District went beyond State requirements and required all District employees who handle pesticides to be certified as a Qualified Applicators by the CDPR. As Qualified Applicators, these employees are trained on pesticide laws and regulations, safety, and application methods, and are required to receive annual training to keep updated in this field.

- Likewise, even before State requirements, the District required that a District Pest Control Advisor (PCA) prepare a pesticide use recommendation for any use of herbicide on District facilities. For the District's purposes, PCAs are required to have a relevant Bachelors degree, be trained in integrated pest management and groundwater, and continue to receive 40 hours of relevant training every two years.

- At the District, the PCA is required to conduct a field survey to assess the site conditions, types of weeds and non-target plants, surrounding land uses, and potential wildlife use prior to writing a pesticide use recommendation. This information is used to make a recommendation with detailed instructions to the applicator regarding the type of herbicide, rate, equipment, treatment area identified on a map, target vegetation, vegetation to protect, and any special instructions relevant to the site and treatment.

- Certain types of herbicides were found as contaminants in groundwater in California's Central Valley. Although no restrictions were placed by the state on their use in Santa Clara County or on soil types found in Santa Clara County, the District voluntarily discontinued the use of certain pre-emergent herbicides on District facilities in 1993 to avoid any potential problems with groundwater. This practice continues today. PCA's receive groundwater training every two years from the CDPR and receive routine updates in changes to the regulations. Though none of the regulations currently apply to this county, the District discontinues use of products that are known groundwater contaminants in other areas of the state.

- In 1994, the District voluntarily eliminated the use of residual pre-emergent herbicides on our groundwater recharge facilities. Today, only herbicides that are registered for use in aquatic areas are used at these locations.

- In 1996, the District retrofitted its spray trucks to include the Patchen WeedSeeker. This device utilizes a light sensor attached to the front of the spray equipment that detects the presence of chlorophyll (and therefore living plants) and controls individual spray heads. Instead of spraying the entire width of a facility as the spray truck passes over it, individual spray heads are turned on only as they pass over vegetated areas. This eliminates the treatment of bare ground and reduces the amount of herbicide applied by 20 to 90 percent. This equipment is primarily limited to use on flat areas where all vegetation needs to be controlled, such as maintenance roads.

~~As a result of these improvements, the District is now proposing that herbicide use be reinstated in the Pajaro River Basin. Herbicides would be used on approximately 56 miles of channel in the Pajaro River Basin, 11 miles of which would be done in conjunction with sediment removal. Implementing this change would require the following actions:~~

- ~~The District's Board will need to adopt implementation of the SMP, changing the maintenance practices in the Pajaro River Basin to include herbicides as a routine maintenance tool.~~

- ~~The maintenance documents for the federally sponsored Llagas Flood Protection Projects (PL-566 projects) will require amendment by the federal sponsoring agency, Natural Resources Conservation Service (NRCS), to include this activity.~~

~~Staff has been working with the Board and the NRCS toward the implementation of this change. Both the Board and the NRCS agree this is a beneficial change.~~

~~Initial removal of trees in Llagas Creek from approximately 600 feet downstream of Highway 152 down to the confluence with the Pajaro River is not considered routine maintenance and will require separate environmental review. See Section II.C.7. Activities Not Included in SMP, c Non SMP Maintenance Projects, Item 3.~~

Herbicide use in the Pajaro River Basin will be limited to the following situations: upland areas including channel banks, levee slopes, maintenance roads and fire breaks above the channel bottom; and upland and channel bottom areas for the control of non-native invasive plants.

Historically, routine vegetation management has been limited at the following locations in the Pajaro River Basin: Llagas Creek from Chesbro Reservoir to Machado Creek, Llagas Creek from Hayes Creek to Church Avenue, Jones Creek and Uvas-Carnadero Creek. Work in these areas under the SMP will continue to be performed as described in the maintenance guidelines for each facility and as described in the engineering guidelines for improved facilities. Vegetation management in these areas will continue to be limited to the control of nonnative invasive species and the hand removal of woody saplings less than 2 inches dbh which occur no closer than 20 feet apart.

c. *Bank Protection Program*

Additional mitigation is proposed for certain bank protection designs. This requires revisions to the description of bank protection in Chapter II of the EIR as shown below.

In the first and second paragraph of pages II-20 of the EIR the following changes are made:

~~**Bank Protection Techniques That Tend To Limit Biotic Potential:**~~

~~Gabions~~
~~Rock blanket (includes larger rip-rap with small rock fill)~~
~~Sacked concrete~~
~~Articulated concrete mat~~
~~Synthetic cellular confinement~~

~~**Bank Protection Techniques That Tend To Retain Biotic Potential:**~~

~~Large boulder revetment~~
~~Root wads and boulders~~
~~Log crib walls~~
~~Concrete crib walls~~
~~Organic surface matting~~
~~Compacted earth fill~~

Based on ~~15~~ 13 years of historical records, the District estimates that an average of roughly one linear mile of stream banks may be repaired annually. Many erosion sites are small and are not easily predicted. The quantity and location of bank protection activities varies greatly from year-to year, based on watershed conditions (heavy rains often lead to more work in the following year), degree of safety hazard, work load, budget, and quantity of other priority work to be done in a given year. The description of historical bank protection in the SMP shows that a greater concentration of bank protection occurs in cities and semi-rural foothills of the Santa Clara Valley. Actual future bank protection work could potentially be done anywhere it is needed within District jurisdiction.

In the second paragraph of page II-23, the following changes are made:

2. Hardscape bank protection projects which ~~limit~~ reduce or eliminate biotic potential and would occur in high quality fisheries habitat or existing high quality riparian habitat. Refer ~~to Table II-8, Bank Protection: In-stream Impact and Mitigation, Table II-9, Bank Protection: Stream-side Impact and Mitigation and~~ to Appendix E of the SMP for further definition of those bank protection projects which are not covered by the SMP.

On pages II-26 and II-27, Tables II-8 and II-9 are replaced with revised Table II-8, Bank Protection Impact Assessment Matrix.

d. Description of Activities Outside the Scope of Routine Maintenance

Recently, Least Bells vireo have been sighted again along Lower Llagas Creek. The status of this bird is described further on pages IV-B-48 and -49 of the EIR. The following changes are made to the Description of Activities Outside the Scope of Routine Maintenance section of the Project Description Chapter of the EIR (third paragraph of page II-23) to clarify activities not included in the SMP. Similar changes are made to the SMP document and are included in the list of revisions to the SMP.

3. ~~Initial removal~~ Any sediment removal, wetland vegetation control, or removal of in-channel trees ~~of in-channel willow trees and other trees~~ in Llagas Creek downstream of ~~Luchessa Avenue (which is approximately 600 feet downstream of~~ **Highway 152~~)~~ to the confluence with the Pajaro** River and the Pajaro River within Santa Clara County. This section of Llagas Creek not been regularly maintained as provided for in the original flood protection project design (co-sponsored by the Natural Resources Conservation Service (NRCS) under Public Law 566) over the past 4 to 5 years because of sighting of a nesting pair of Least Bells vireo and for other reasons. In the meantime, young trees have developed substantial growth in this section of the creek and their removal has the potential for environmental effects not within the scope of vegetation management reviewed under the SMP. Maintenance work in this section of Llagas and the Pajaro River are not considered routine until the status of the Least Bells vireo at this location is determined and a plan for future maintenance developed. At that time, future routine maintenance will be evaluated under a new or revised CEQA evaluation. Control of giant reed on the Pajaro River and Llagas Creek is included in the SMP. ~~For this section of Llagas Creek, the District will continue to remove trees less than 2" dbh as routine stream maintenance. Removal of trees greater than 2" dbh, as necessary to restore this section of Llagas Creek to its original design, is not considered~~

> ~~routine maintenance and will require separate environmental review. Once this section, is restored, its subsequent routine maintenance would be covered by the SMP.~~

e. Geomorphic Assessment

Without the switch from mechanical to herbicide methods for managing vegetation in the Pajaro River Basin, the Modified Pajaro River Basin Alternative has less potential for increasing sediment accumulation downstream of vegetation management activities. As a result, the following changes are made to the Geomorphology section of Chapter IV Environmental Assessment (last paragraph of page IV-A-24 and the first paragraph of page IV-A-25).

> In many locations vegetation management both from herbicide applications and manual methods is consistent and routine; these areas are less likely to experience this effect. Creek reaches which have not undergone routine vegetation maintenance~~, or reaches where the vegetation control system changes~~ may have greater impact potential, because they may have more trapped sediment within the vegetation. ~~This effect could occur in the southern portions of the County that will be switching from mechanical to herbicide vegetation management.~~

f. Biologic Assessment

Under the Modified Pajaro River Basin Alternative, Impact Bio-1 *Impacts to Sensitive Plant Communities* will be reduced in size since the impacts to freshwater wetlands and riparian vegetation will be reduced. Impact Bio-6 (*The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife*) will not occur. This impact is completely deleted from pages IV-B-75 and -76 of the EIR. There are also general changes needed at the beginning of the biological assessment. **Revised tables are included in the list of revisions to the EIR.** The following changes are made to the biological evaluation of Chapter IV-B of the EIR for the Modified Pajaro River Basin Alternative.

The first paragraph of page IV-B-1 regarding the introduction of the Biology chapter is revised as follows:

> District activities under the SMP would affect salt and brackish marsh habitat ~~in~~ tidal areas and freshwater wetland, riparian forest and woodland, ruderal/non-native grassland, and open water habitat in non-tidal areas. The District's proposed 20 year work program would temporarily remove an estimated cumulative total of ~~146~~ 136 **acres of jurisdictional wetlands: 30 acres in tidal areas, and ~~116~~ 106 acres in non-tidal areas. Implementation of vegetation management under the SMP would also remove an estimated cumulative total of ~~78~~ 66 acres of in-stream woody riparian vegetation. An additional, unquantified amount of riparian vegetation would be removed for bank protection, which will impact approximately one linear mile of bank per year. The direct and cumulative impacts of sediment removal, vegetation management, and bank protection would be mitigated by implementing BMPs and providing compensatory mitigation. Compensatory mitigation would include tidal wetland restoration, freshwater wetland creation, stream and watershed protection, and control of giant reed.**

The following revisions are made to the third paragraph on page IV-B-57:

The assessment of impacts from the SMP are limited to an evaluation of the changes the SMP could cause in the physical environment from the current baseline condition. In the impact discussion below, ~~three~~ two general categories of changes are identified: those which will be caused by continuing maintenance over an additional period of 20 years, and areas included in the program where routine maintenance has not occurred on a frequent basis in the past~~, and the resumption of the use of herbicides in the Santa Clara Basin.~~ This impact evaluation does not assess the biological impacts of the original construction of the flood protection projects, nor of prior, longstanding maintenance. Rather, it evaluates the effect of continuing the existing maintenance practices, with some modification in area ~~and methodology~~, in a new program approach for a length of 20 years.

The last paragraph on page IV-B-61 is deleted:

~~Projected vegetation management areas were refined to include the Pajaro River Basin areas where herbicides are not currently used, but are proposed for herbicide treatment as part of the program. For those areas, future herbicide use was projected based upon the area of existing hand removal and mowing operations and known target vegetation.~~

Impact Bio-1 is revised on pages IV-B-65 through -67 as follows:

Impact Bio-1: Sediment removal and vegetation management would impact in-stream wetland and riparian vegetation (Criterion Bio-1).

Implementation of the program would cause temporary but repetitive impacts to ~~116~~ 106 acres of freshwater wetlands, 30 acres of tidal wetlands, and ~~78~~ 66 acres of in-stream riparian vegetation due to sediment removal and vegetation management in stream channels. Concrete-lined channels are included in these projections as well as earthen channels. Seven of the ~~116~~ 106 acres of freshwater wetlands occur in water delivery canals. Refer to Revised Table B-IV-7 for a summary of vegetation impacts and revised Table II-4 for a breakdown of vegetation impacts by work activity type. Figure IV-B-13 shows the location of projected impacts to stream vegetation. As described in the introduction to the significance criteria for this chapter, any removal of wetland or riparian vegetation from sediment removal or vegetation management activities is considered cumulatively significant for the purposes of the SMP. These impact acres are based on the one-time accounting method described above and on the implementation of the following BMPs, which would reduce the impacts of removing wetland and in-stream riparian vegetation:

1.13	Prevent Scour Downstream of Sediment Removal
2.1	Minimize vegetation removal
3.6	Remove Sediment from One Side of Large Channels in Alternate Years

Implementation of the BMPs referenced above would reduce the adverse impacts of the SMP caused by removing wetland and in-stream riparian vegetation; however, the vegetation would be lost and residual impacts would remain. Implementation of the compensatory mitigation proposed for the SMP would reduce these residual impacts to tidal wetlands, freshwater wetlands, and instream riparian vegetation to a less than significant level. The effect of the compensatory mitigation on these three resources, as well as a summary of other related impacts, is described in the following discussion:

Tidal Wetlands

For tidal wetland impacts, no new tidal work areas are projected~~, and, in the Pajaro River Basin where the switch to herbicides is proposed, there are no tidal areas~~. Thus, the removal of 30 acres of tidal wetlands over the next 20 years would be a continuation of existing practices and adoption of the SMP would not result in any new adverse change in ongoing effects. The compensatory mitigation program includes restoration of 30 acres of tidal wetlands at a location either directly adjacent to or no farther than 7 miles from the tidal wetland impact areas. The restoration site is expected to support permanent tidal wetland similar to or of higher quality than the tidal wetland temporarily impacted by repetitive maintenance activities. Refer to the more extensive description of this mitigation measure in SMP Chapter 5. This mitigation measure is therefore considered sufficient to reduce the level of impacts to tidal wetlands to a less than significant level.

Freshwater Wetlands

For freshwater wetlands, sediment removal is projected to occur on approximately 6 miles of streams (5 miles in the Santa Clara Basin and 1 mile in the Pajaro River Basin) that have not undergone regular maintenance in the past. Work in this area would affect 3 acres of freshwater wetlands in the Santa Clara Basin and less than 1 acre in the Pajaro River Basin. In the Pajaro River Basin, vegetation management is projected to occur on an additional 9 miles of streams where vegetation management has not been undertaken on a regular basis in the past, which would affect 4 acres of freshwater wetlands. Thus, the SMP would affect ~~116~~ 106 acres of freshwater wetlands in the future, of which 7 acres would be a new adverse change.

The compensatory mitigation program includes creation of 14 acres of freshwater wetland (10 in the Santa Clara Basin and 4 in the Pajaro River Basin) and ~~920 to 1,210~~ 820 to 1,080 acres of stream and watershed protection to compensate for impacts to freshwater wetlands. The locations of these mitigation components will be allocated so that they occur within each basin at approximately the same level as the impacts. The freshwater wetland creation sites will occur at a few locations on the valley floor as compared to the impact areas, which are spread throughout each basin. Although the freshwater wetland creation sites will not be instream as are the impacted freshwater wetlands, they have an advantage of not being subjected to routine disturbance from flood protection maintenance as the impacted sites are, and they will provide habitat for common local wildlife and wetland-related plants in a streamside setting. The types of wetland plant species affected are widespread and regenerate quickly, thus it should not be difficult to create new wetlands of similar or higher quality.

The specific locations of the stream and watershed preservation efforts have not been chosen yet. They are generally expected to be farther up in the watershed than the impacts, however, since the upper watershed is where land suitable for preservation is most available. The type of stream habitat protected under the stream and watershed component is different than the instream freshwater wetland impacted in modified earthen and concrete channels, but the former consists of more structurally and functionally complex native riparian and riverine habitat that occur on less altered stream reaches.

Refer to the more extensive description of these mitigation measures in SMP Chapter 5. Because of the size and quality of the freshwater creation and stream and watershed compensation components, they are considered sufficient to reduce the level of impacts to freshwater wetlands to a less than significant level.

In-stream Riparian Vegetation

No new work areas are projected that would affect in-stream riparian vegetation. ~~The additional impact to in-stream riparian vegetation from the conversion to herbicide use in the Pajaro River Basin is discussed under Impact Bio-6 below.~~ Thus, the removal of ~~78~~ 66 acres of in-stream riparian vegetation of a sapling size over the next 20 years would be a continuation of existing practices, and adoption of the SMP would not result in any new adverse change in ongoing effects.

The compensatory mitigation program includes control of ~~80~~ 66 acres of giant reed over a 10-year period to mitigate for the impacts to riparian vegetation. This program includes associated efforts such as mapping, revegetation, monitoring, and education. Refer to the more extensive description of this mitigation measure in SMP Chapter 5. Since giant reed displaces open water and native riparian and wetland plant communities of freshwater streams, its control is appropriate compensation for impacts to sapling riparian vegetation caused by channel vegetation management activities. The giant reed control program will be spread throughout the county, as are the impacts, although control areas will be targeted to those locations where which the most habitat value can be obtained from sustained control efforts. The giant reed control program will reduce the impacts to riparian vegetation to a less than significant level.

An additional ~~45~~ 59 acres of giant reed control is proposed to compensate for any lag time between maintenance impacts to stream vegetation and implementation of the tidal wetland restoration, freshwater wetland creation, and stream and watershed protection mitigation components.

Other Impacts

With the exception of a small amount of fill, which may occur from some bank protection projects, the SMP would not cause a loss of acreage of jurisdictional waters. Incidental fill is expected to be minimal due to the employment of BMPs. The direct effects to woody riparian vegetation from bank protection were not quantified. Bank protection rarely directly impacts woody riparian vegetation. Because bank protection effects on riparian vegetation primarily affect wildlife, this impact is discussed below in the *Impacts to Wildlife Species* section (see Impact Bio-5). The cumulative adverse impact of the loss of wetland and in-stream riparian vegetation on wildlife is also discussed in that section (see Impact Bio-4). ~~The additional impact to freshwater wetlands from the conversion to herbicide use in the Pajaro River Basin is discussed below under Impact Bio-6.~~ Additional changes are made to the biologic assessment regarding the mitigation for bank protection.

In the fourth paragraph of page IV-B-74, the following changes are made:

Implementation of the BMPs referenced above would reduce the adverse impacts of hardscape installation for bank protection; however, over the life of the program habitat would be lost or reduced in value resulting in residual impacts. However, as stated in the Project Description (Chapter II), the District has committed to installing no more than 50 percent of future bank protection projects under the SMP using hardscape methods. ~~Although these residual impacts may be considered insignificant when reviewed on an individual site basis, when evaluated on a program basis the potential for significant, cumulative impacts remains. Implementation of BMP 3.5, for example, would replace functions and values lost via the mitigation provided in the Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities (SMP Appendix E), but that mitigation would not always occur at the impact site and therefore could result in a cumulative fragmentation effect. The cumulative impact from bank protection would thus remain significant and unavoidable.~~ As described in SMP Appendix E, Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities, in-stream and stream-side resources impacts from bank protection will be evaluated and mitigated separately. Implementation of BMPs and mitigation measures as stated in Appendix E of the SMP report would reduce residual impacts to insignificant levels. Additionally, the District will mitigate for all impacts for impervious hardscape and for unvegetated rock bank protection at a ratio of 3:1 and for all vegetated rock at a ratio of 1:1 regardless of the determination of the impact assessment matrix. This will account for all direct, potential and cumulative impacts from the bank protection program. All impacts and credits will be measured by area and the on-going totals will be reported in the annual report. Mitigation for both in-stream and stream-side impacts will consist of revegetation consistent with the Protocal for Revegetation Associated with Use of Impervious materials for Bank Stabilization in Appendix E. Over time there will be a net increase in stream-side habitat from the proposed mitigation.

On pages IV-B-75 and -76, the following changes are made: The Impact Bio-6 (*The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife*) is completely deleted.

On page IV-B-101, third and fourth paragraph, the following changes are made:

The bank protection program avoids impacts by ~~distinguishing~~ three categories of streams based on the fishery values they support and ~~altering~~ alternative bank protection methods accordingly. First, reaches of streams supporting or potentially supporting steelhead and resident trout are recognized as highly sensitive. ~~and bank protection methods that do not incorporate fishery values are not acceptable in these streams (fish habitat categories are described in *Fisheries and the Aquatic Environment*, above). Only bank protection methods incorporating fishery values that, at a minimum, replace those previously present will be used. If a site requiring bank protection is located in this type of stream but has limited or no fishery values present, methods incorporating fishery values would be counted as mitigation credit at a 1:1 ratio (by project length) for other bank protection program impacts. If site constraints are such that methods incorporating fishery values cannot be used, mitigation credits must be used at a 2:1 ratio by project length.~~ Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

A second category of stream reaches does not support steelhead or resident trout but occurs downstream of steelhead/trout habitat and may therefore be used by migrating individuals. In addition, chinook salmon may spawn in some of these reaches and salmon fry may rear there for brief periods in the spring. Alternatively these reaches may be dominated by a natural assemblage of native warmwater fish (primarily Sacramento sucker and California roach) and may also have the potential to support red-legged frogs and other sensitive species. Although not as critical as the first group of streams, fishery values including escape cover, velocity refuge, and fine sediment stabilization may still be important. ~~In this group of stream reaches, bank protection projects will use methods incorporating fishery values at sites where those values are present. Methods that do not incorporate fishery values may be used but must be mitigated on a 1:1 basis. If bank protection sites do not support fishery values, using methods that support such values will gain mitigation credits on a 1:1 basis while use of other methods will result in neither loss or gain of mitigation credits.~~ Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

On the first paragraph of page IV-B-102, the following changes are made:

> The third category of stream reaches has no steelhead or trout habitat upstream but may itself support a variety of fish community types, including mixed native and introduced, fish scarce, and no value. In such streams, bank protection projects incorporating fishery values may have little benefit to the aquatic community present. Greater flexibility in selection of bank protection methods is possible in this category and, while other species should be considered, virtually any method may be selected without potential impact to steelhead/rainbow trout, chinook salmon, or fish communities dominated by warmwater native fish (although other biological impacts to non-salmonids may occur; see Impact Bio-5). Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

On the second paragraph of page IV-B-102, t he following changes are made:

> ~~*Following the guidelines prescribed by the Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities, impacts from bank stabilization to special-status anadromous salmonid fish would be less than significant.*~~

In the second paragraph of page IV-B-103, the following changes are made:

> Bank protection may reduce the amount of salt and tidal wetland habitat available for special-status plants, birds, and mammals. Loss of wetlands is not typically associated with an erosion site. Bank protection could occur on streams that are adjacent to salt and tidal wetlands and that have the potential to support these species. However, the only Group D species that could be substantially affected by bank protection are California black rails and California clapper rails. California black rails and California clapper rails are not expected to nest within the stream channel; however, rails may forage in the channels. Bank protection could eliminate foraging habitat. The other Group D species are not expected on stream banks that will receive bank protection because these are typically unvegetated due to soil erosion.

g. CEQA Questions

Under the Modified Pajaro River Basin Alternative, the use of herbicides throughout the channels in the Pajaro River Basin is not resumed, therefore, there is no significant biologic impacts due to such a switch. With Impact Bio-6 eliminated, the following changes are made to the CEQA Questions Chapter of the EIR (page VI-2):

> ~~Other~~ One biological impacts remains significant even after application of mitigation measures: ~~resuming herbicide use in the Pajaro River Basin, thus holding vegetation to a lower successional stage, and~~ fragmentation of habitat caused by breaking the linear stream corridors into smaller pieces. Since at this time it is unknown the extent of impacts caused by this practice ~~both of these practices~~, these impacts are considered significant even after mitigation. However, ~~both of these practices do~~ this practice does not result in irreversible changes, as the impacts would disappear if the practices ~~were~~ was discontinued.

Because additional mitigation is proposed for bank protection, residual impacts are no longer significant and unavoidable. The following revisions are made in the CEQA Questions Chapter.

In the fourth paragraph of page VI-2, the following changes are made:

> ~~The structures created by bank protection can be considered essentially permanent. Chapter IV.B., Biology identifies hardscape installation for bank protection, as having the potential to have cumulative, significant, irreversible environmental changes. Implementation of the BMPs would reduce the adverse impacts, habitat would be lost or reduced in value resulting in residual impacts. The proposed 3:1 mitigation for impervious bank protection and unvegetated rock bank protection would provide a net increase in stream-side habitat in the long run and reduce residual impacts to an insignificant level. The actual amount of hardscape versus softscape to be installed by future bank protection cannot be projected because the conditions of each site and resulting design vary greatly and cannot be predicted. The cumulative impacts from bank protection would thus remain unavoidable at an insignificant level.~~

In the fifth paragraph of page VI-2, the following changes are made:

> ~~Other~~ One biological impacts remains significant even after application of mitigation measures: ~~resuming herbicide use in the Pajaro River Basin, thus holding vegetation to a lower successional stage, and~~ fragmentation of habitat caused by breaking the linear stream corridors into smaller pieces. Since at this time it is unknown the extent of impacts caused by this practice ~~both of these practices~~, these impacts are considered significant even after mitigation. However, ~~both of these practices do~~ this practice does not result in irreversible changes, as the impacts would disappear if the practices ~~were~~ was discontinued.

In the fourth paragraph of page VI-4, the following changes are made:

> The SMP includes a compensatory mitigation package to compensate for significant residual impacts. This mitigation is described in detail in Chapter 5 of the SMP. There are potential cumulative environmental impacts of the mitigation program which will be addressed as part of the Mitigation and Monitoring Program to be prepared prior to completion of the FEIR or under specific CEQA documents to be prepared for certain mitigation projects (e.g. Pond A-4 and Los Capitancillos).

This section summarizes what is currently known about potential environmental effects of these mitigation projects and how these will be resolved. All environmental effects are expected to be resolved in the individual project CEQA documents tierred from this programmatic EIR ~~therefore, no cumulative effects along with the SMP work activities will occur.~~

2. Master Response Regarding Aquatic Herbicides

Under this master response regarding aquatic herbicides, additional information is provided regarding the active ingredient glyphosate in herbicide formulations, the surfactant R-11, a recent study in the Klamath National Forest regarding the biological effects of glyphosate and R-11, and an explanation of acute and chronic toxicity.

a. Glyphosate

Monsanto formerly marketed the glyphosate formulation "Rodeo" for aquatic application; Monsanto now markets the same formulation as "Aqua Master". This recent brand-name switch is explained in the EIR. Unfortunately, most of the literature refers to Rodeo and EIR reference to Rodeo is intended to maintain accurate literature reference. Actual herbicide application under the SMP will be using either the Aqua Master or Rodeo product. Any references to Rodeo should be considered equally relevant to Aqua master because they are the same formulation.

The active ingredient glyphosate is available in several different formulations. The product, Roundup Pro contains glyphosate (41%), a surfactant, and water. The product, Aqua Master contains glyphosate (53%) and water. Aqua Master contains no added surfactant. In extensive aquatic testing, the surfactant in Roundup is found to have greater toxicity than the active ingredient. For this reason, Roundup is not registered for use on or near open water. The Roundup formulation available to the homeowner is similar to the formulation of Roundup Pro, and hence use near water is restricted. The homeowner product is sold in a dilute, ready-to-use formulation at a 1% concentration of active ingredient. Roundup Pro and Aqua Master are sold for professional use in concentrated form; the professional user dilutes the concentrate to create a spray mixture of about 1%, similar to the home product, which is then applied to the target vegetation.

Glyphosate is termed a "non-selective" herbicide because its herbicidal activity affects all green plants. Some herbicides such as triclopyr (Garlon) are termed "selective" because they kill dicots (most broad-leaved plants) but not monócots (grasses). This means that a Garlon application to vegetation along a channel would kill all woody and herbaceous plants, but leave the grasses; Roundup would kill woody plants, herbaceous plants, and the grasses. The toxic action of so-called selective herbicides is so broad that there is little ecological significance. For in-channel application, glyphosate in diluted form is sprayed from a hand-held nozzle or "tree-gun" connected by hose to a truck-mounted tank. The applicator directs the spray at the target vegetation and avoids open water and non-target vegetation as much as is practical. The ability of the operator to control the herbicide spray limits the quantity needed and minimizes the environmental impact. Target selectivity is even more effective at limiting non-targeted effects than chemical selectivity.

Glyphosate is a systemic herbicide; when applied to foliage, the herbicide is absorbed into and translocated throughout the plant and kills the whole plant by interfering with its metabolism. When applied near water, the quantity of glyphosate which enters the water is further diluted by the volume of the water body and the resulting concentration is insufficient to produce a toxic dose for emergent vegetation downstream. Small aquatic plants and phytoplankton in open water receiving a glyphosate over-spray are killed. Based on field measurements of open water with stream flows, the effect downstream of an application site appears to be limited to less than the first 100 feet. Open water with no stream flow has significantly less dilution effect and phytoplankton die-off is more pronounced. Plankton recovery takes several days. No effect on non-sprayed emergent vegetation was noted.

b. *Surfactant R-11*

The surfactant or adjuvant R-11 ® is manufactured by Wilbur-Ellis. R-11 ® contains Octylphenoxypolyethoxyethanol (CAS 9036-19-5), n-Butanol (CAS 71-36-3), and Compounded silicone. The active ingredients in R-11 are classified by US EPA Inert Ingredients in Pesticides (US EPA 1994) as List 4B, "sufficient information to conclude that current use patterns in pesticide products will not adversely affect public health and the environment." Studies for R-11® were reviewed and accepted by California EPA (Lapurga 1996). R-11 ® would be classified as Moderately Toxic to fish (LC50 3.8 mg/l) and Slightly Toxic to invertebrates (LC50 19.0 mg/l). Rodeo itself is pure glyphosate (53% in water) and is considered Practically Non-toxic to fish (LC50 > 100 mg/l). (Assessment of glyphosate and adjuvant R-11 in "Glyphosate Herbicide Information Profile", United States Department of Agriculture, Forest Service, Pacific Northwest Region February, 1997.)

R-11 has state and federal approval for use with Rodeo/Aqua Master over water. Rodeo with R-11 surfactant is a standard mixture used in California for aquatic and riparian application. It is the herbicide mixture of choice for the "Team Arundo" throughout the state. The invasive weed, giant reed is nearly always found in aquatic ecosystems and the Rodeo and R-11 mixture is approved for use in its control..

The District conducted field testing after standard Rodeo and R-11 application in 1996. Glyphosate concentrations were measured; R-11 component concentrations were not. Effect on phytoplankton and zooplankton were observed, but the test locations contained no observed vertebrates.

c. *Klamath National Forest Study*

Glyphosate and R-11 surfactant are used in Northern California and Southern Oregon for invasive species control from the edge of the stream to the edge of the riparian area. It is considered to have low persistence and an acceptable level of environmental risk in this application when applied in May and June, several months before the rainy season (Olson, 2000). The North Coast Regional Water Quality Control Board participated in the assessment of that project. It contains a specific and recent assessment of the glyphosate and R-11 combination which is relevant to the District's use of glyphosate with R-11. The relevant section of this report is included below.

Excerpts from: Biological Assessment and Evaluation for Knapweed Eradication On the Salmon River Ranger District, Klamath National Forest", Brenda Olson, United States Department of Agriculture, Forest Service, Salmon River Ranger District, Klamath National Forest, August 1, 2000

VI. EFFECTS OF THE PROPOSED ACTION

A. Direct and Indirect Effects

For clarification of concentration terminology used throughout this section, the information below should be referenced while reading:

1 ppm = 1 mg/kg = 1mg/l
1 ppb = 1 µg/kg = 1 µg/l

The direct and indirect effects analysis pertains to all the anadromous fish found in the Salmon River sub-basin. The effects to SONNC coho are potentially less than other species due to the lower probability of coho currently occurring in the North Fork Salmon River.
In general, for aquatic organisms lethal effects (LC50) at concentrations below 1 part per million (ppm) are considered indicative of highly toxic substances, effects at concentrations of 1 to 10 ppm are considered toxic, and effective concentrations at greater than 10 ppm are considered indicative of slightly toxic compounds (Clark et al. 1970 as cited by USFS 1984). In addition, No Observable Effect Concentrations (NOEC) for survival after brief acute exposures to peak concentrations can be estimated by the formula 0.1(96-h LC50) or 10% of the 96-hour LC50 values (Norris et al. 1991).

Drift from nearby spray areas is similar to direct application except that peak concentrations are lower and the probability that stream organisms will be affected is reduced (Norris et al. 1991). The concentration of introduced chemicals normally decreases rapidly with downstream movement because of dilution and the interaction of the chemical with various physical and biological components of the stream system (Norris and Montgomery 1975 as cited by Norris et al. 1991).

None of the studies referenced mention whether or not their results were temperature dependent.

It is recognized that the analyses for the proposed chemicals are all different. This is due to the information available for the various chemical risk assessments. The following research cited was completed on the chemicals themselves and not necessarily on the herbicides proposed for use. Therefore, unless specified, the following section will just name the chemical that is found in the proposed herbicides.

Direct Effects

Direct effects to the fisheries resource could occur during the treatment of the floodplain zone, possibly during the riparian zone treatment from spray drift, from possible accidental spills, and possibly from herbicide reaching the stream from overland flow (runoff). Only short duration herbicides will be used in the floodplain and riparian areas, in particular glyphosate (Rodeo® with R-11 surfactant) and 2,4-D amine (Weedar® 64).

Glyphosate is a non-selective herbicide and is one of the most widely used pesticides by volume (EPA, 1993). Rodeo® is the form of glyphosate that is proposed for use. The active ingredient in Rodeo® is Glyphosate, N-(phosphonomethyl) glycine, in the form of its isoproylamine salt (53.8%), 46.2% are inert ingredients (Monsanto, 1997).

This particular herbicide moves through the plant from the point of foliage contact to and into the root system (Monsanto, 1997).

Glyphosate adsorbs strongly to soil (Monsanto, 1997; EPA, 1993; SERA, 1996) and is not expected to move vertically below the six inch soil layer (EPA, 1993). Glyphosate is readily broken down by soil microbes to AMPA, which is degraded to CO_2 (EPA, 1993).

AMPA also strongly adsorbs to soil particles (EPA, 1993). If glyphosate were to reach surface water, it would not be broken down readily by water or sunlight (EPA, 1993), however concentrations in natural water will diminish rapidly due to microbial degradation, binding to suspended particulate, or dispersion (SERA, 1996). Monsanto (1997) states on the label that the biological degradation process will occur under both aerobic and anaerobic conditions by soil microflora. Glyphosate is practically non-toxic to fish and aquatic invertebrates (EPA 1993, SERA 1996, Monsanto 1998).

The toxicity of glyphosate to aquatic species depends on the acidity (pH of the water). Glyphosate is more toxic in relatively acidic waters (pH 6) by as much as a factor of 10, compared to alkaline waters (pH 10). In general the LC50 values for aquatic animals range from approximately 10 - 400 mg/L, depending on species and water pH (SERA 1996). Table 5 shows the Observed 96-hour LC50 values for three salmonid fishes. The pH for the Salmon River is approximately 7.

TABLE 5. Observed 96-hour LC50 values for Glyphosate (Wan et al. 1989 as cited by SERA 1996).

	Water		
Fish species	pH 6.3	pH 7.2	pH 8.2
Coho salmon	27 mg/L	36 mg/L	210 mg/L
Chinook salmon	19 mg/L	30 mg/L	220 mg/L
Rainbow trout	10 mg/L	22 mg/L	220 mg/L

Daphnia were significantly more sensitive than other invertebrates to glyphosate. The LC50 for daphnia, 218 mg/L, is about the same as that reported for fish at comparable pH (ph 8.2) (SERA 1996).

For assessing the potential for toxic effects in fish, a reference concentration of 1 mg/L will be used for glyphosate. This is about a factor of 10 less than the lowest reported LC50 values (SERA 1996). At this level, there is no reason to anticipate acute or long-term effects in fish.

There is little evidence to suggest that aquatic animals will be adversely affected by normal applications of glyphosate. Most species of algae and macrophytes do not appear to be more sensitive than fish or aquatic invertebrates to glyphosate.

Field studies indicate that maximum initial concentrations of glyphosate in water after aerial or ground applications can be estimated, based on application rates, at approximately 0.1 mg/L·lb a.i. applied per acre (SERA 1996). At the maximum labeled application rate of 7.5 lbs. active ingredient (a.i.)/acre, concentrations of glyphosate would be expected to reach 0.75 mg/L. At this level, no effects on fish, aquatic inverts, macrophytes, and most species of algae would be expected from the application of Rodeo ® (SERA 1996). Since the proposed rate of application for Rodeo® is almost half of the maximum allowed under the label (4 lbs a.i./ac), aquatic organisms in the North Fork or Mainstem Salmon River should not be affected as the concentration would be 0.4 mg/L or less.

Edwards et al. (1980 as cited by Norris et al. 1991) did a study to define concentration and transport of glyphosate. The maximum amount transported by runoff was 1.85% of the amount applied, most of which occurred during a single storm on the day after application of the highest rate of glyphosate (8.96 kg/hectare). In each of the three study years, herbicide transported in the first runoff event after treatment accounted for 99% of the total herbicide runoff. Rueppel et. al (1977 as cited by Norris 1991) reported less than 0.02% of applied glyphosate was removed by runoff from soil after artificial rain was applied at the rate of 1.9 cm/h 1, 3, and 7 days after application. Therefore, insignificant amounts of glyphosate should runoff the site during and after the first storm event, particularly when this is not an aerial operation but an individual plant spray operation, and several months would have passed between application and fall rains.

The surfactant R-11 is manufactured by Wilbur-Ellis. It is used in the Forest Service Region-5 (state of California) as a surfactant for glyphosate applications. The label for R-11 states it may be used with aquatically labeled glyphosate at 2 quarts per 100 gallons of spray solution.

R-11 has a nonylphenol polyethoxylate (NPE) ingredient that puts it in a broad class of chemicals known as alkylphenol ethoxylates (APEs). A raw material used to make NPE is nonylphenol (NP). NP has been shown to exhibit weak estrogenic properties in laboratory tests. In comparison to the natural estrogen 17-estradiol occurring in organisms, NP is approximately 100,000 times weaker in eliciting estrogenic responses.

NPE has also been found to be weakly estrogenic through lab tests, but less potent than NP by an order of magnitude (EPA 1996). The NPE used in R-11 has about nine ethoxylate groups attached (referred to NP9E) making it highly water soluble (Bakke 1999).

Research has shown that in the presence of oxygen, NPE biodegradation is rather quick, with lab-tested half-life of a few to several days. In aerobic conditions NP9E is broken down by removal of the ethoxylate groups as a result of microbial action, into shorter-chain ethoxylates. These short-chain ethoxylates can further be broken down into nonylphenol ether carboxylate (NPEC) (APE Research Council 1999; EPA 1996, Maguire 1999, as cited in Bakke 1999). The basic aromatic ring at the center of the NPE molecule appears to break apart prior to the loss of the final ethoxylate groups, therefore the formation of NP is not likely (APE Research Council 1999, as cited by Bakke 1999).

In anaerobic conditions, NP would be produced from the breakdown of NPE. However, NP is adsorptive to soil organic carbon, and therefore would not likely move through the soil or stream sediments (EPA 1996).

If the 24 hr LC50 ÷ 96 hr LC50 for a particular chemical is approximately 2, it indicates the chemical may cause chronic effects (Zeeman 1995, as cited in EPA 1996). The sensitivity of rainbow trout to NP is 300 µg/l for the 24 hr LC50 and 190 µg/l for the 96 hr LC50. Therefore, NP will not have chronic effects on rainbow trout, having a 24 hr/96 hr value of 1.6 (Dwyer et al. 1995 as cited in EPA 1996). The LC50 for all fish for NP9E ranges from 1,300 - 1,000,000 µg/l (1.3 - 1,000 ppm). The concern concentration of NP for rainbow trout is 3 µg/l. This is also the concentration of the No Observable Effect Concentration (NOEC).

In a nationwide 30 rivers study done by a panel of manufacturers under EPA's recommendation, no concern concentrations for pelagic organisms were exceeded with any of the measured concentrations. The highest measured concentration was 0.64 µg/l of NP which came from the highly polluted Grand Calumet River in Indiana. From this study it was determined that nationwide, there appears to be a low risk posed by NP to pelagic organisms.

Toxicity of NP9E, the ingredient in R-11, is 1-2 orders of magnitude less than NP, while toxicity of the intermediate breakdown products, NPEC and shorter chain NPEs, are intermediate between NP and NPE (EPA 1996). Bioconcentration of NP in freshwater fish appears to be low to moderate (EPA 1996).

In the fall of 1998, the California Department of Fish and Game investigated the toxicological impacts of Rodeo ® and R-11 on larval fathead minnows, Pimephales promelas. Water samples for chemical residue analysis and acute toxicity testing were collected from waterways directly adjacent to the herbicide/surfactant applications.

Water samples collected one hour after aerial herbicide applications (direct application to water) contained a maximum surfactant concentration of 0.013 mg/l (13 µg/l) (Trumbo 1999). This is well below the NP LC50 for rainbow trout, however above the concern concentration. Since R-11 does not contain NP but N9PE which is 1 - 2 magnitudes less toxic, it is assumed the potential for exceeding the no concern concentration is nil.

Effects are not expected to occur as a result of using the R-11 surfactant. This is due to NP9E being less potent than NP by an order of magnitude in estrogenic effects, the short half-life (few to several days), it is adsorptive to stream sediments and solid organic carbon, and heavily polluted rivers were under the concern concentration of NP for rainbow trout. In addition, this is a single plant spray operation, few plants near the stream are expected, and for those that are, special precautions are in place. (Biological Assessment and Evaluation for Knapweed Eradication On the Salmon River Ranger District, Klamath National Forest , August 1, 2000, www.r5.fs.fed.us/klamath/mgmt/envan/knapweed/knapweed.pdf).

d. Acute and Chronic Toxicity

Acute toxicity is the harm caused by a single short duration exposure. Chronic toxicity is the harm caused by repeated or prolonged exposure. According to US EPA protocol, studies of chronic toxicity for pesticides involve repeated daily exposure of experimental animals to a chemical by oral, dermal or inhalation routes for a period of at least 12 months (US EPA 1996). Although some chronic effects are observed more quickly, there is a clear distinction between the risk from occasional, brief (acute) and frequent, prolonged (chronic) exposure.

APE (Alkylphenols & Ethoxylates) Research Council. 1999. Alkylphenols Cand alkylphenol ethoxylates: an overview of safety issues.

Bakke, D. 1999. Estrogenic Effects and toxicity to aquatic organisms from exposure to the surfactant R-11. Issue paper to the Director of State and Private Forestry of Region-5, USDA Forest Service.

Clarke, F. E., D. G. Harvey, and D. J. Humphreys. 1970. Vetrinary Toxicology. Bailliere Tindall, London.

Edwards, W. M., G. B. Triplett, Jr., and R. M. Kramer. 1980. A watershed study of glyphosate transport in runoff. Journal of Environmental Quality, 9:661-665.

E.P.A. 1993. R.E.D. Facts, glyphosate. EPA-738-F-93-011.

E.P.A. 1993. Reregistration Eligibility Decision (RED), glyphosate.

E.P.A. 1996. RM-1 document for para-nonylphenol.

EPA. 1996. Prevention, pesticides and toxic substances (7101). EPA 712-C-96-210. June 1996. Health Effects test guidelines 870.4100 Chronic toxicity (c) definitions.

Maguire, R.J. 1999. Review of the persistence of nonylphenol and nonylpheol ethoxylates in aquatic environments. Water Quality Research Journal of Canada, 34(1):37-78.

Monsanto. 1997. Rodeo emerged aquatic weed and brush herbicide label.

Norris, L. A., H. W. Lorz, and S. V. Gregory. 1991. Forest Chemicals. American Fisheries Society Special Publication 19:207-296.

Norris, L. A. and M. L. Montgomery. 1975. Dicamba residues in streams after forest spraying. Bulletin of Environmental Contamination and Toxicology 13:1-8.

Rueppel, M. L., B. B. Brightwell, J. Schaefer, and J. T. Marvel. 1977. Metabolism and degradation of glyphosate in soil and water. Journal of Agricultural and Food Chemistry, 25:517-528.

SERA (Syracuse Environmental Research Associates, Inc.). 1996. Selected commercial formulations of glyphosate Œ Accord, Rodeo, and Roundup risk assessment final report. SERA TR 96-22-02-01b, prepared under USDA-Forest Service contract number 53-3187-5-12.

Trumbo, J. 1999. Giant cane control and herbicide/surfactant impacts to larval frogs and fish. California Department of Fish and Game, Pesticide Investigations Unit, Rancho, Cordova, CA.

USDA-Forest Service. 1984. Pesticide background statements, Vol. 1, Herbicides. Agriculture Handbook No. 633.

2. Master Response Regarding Geomorphology

Several commenters addressed the relationship between routine maintenance and flood water conveyance in Santa Clara County channels. In general, commenters stated that reliance on streams for flood conveyance in the urban portion of the County was responsible for their present modified and often degraded state. Commenters claim that maintenance activities, specifically sediment removal, do not improve the condition of the streams, but only hold them in a disturbed state.

The analysis in Chapter IV. A. Geomorphology of the EIR describes the relationship between urban encroachment, past channel modification, geomorphic instability, and the need for routine maintenance. On the valley floor, with average slope less than 4 percent, stream geometry normally comprises a small channel within a much larger flood plain. This small channel is capable of carrying the volume during peak flows encountered on a one or two-year cycle; the flood plain is formed by far larger peak flows occurring less frequently, such as a 20 to 100 year cycle. In the Santa Clara Valley, the flood plain has been filled in or blocked-off by levees so that it cannot carry flood flows, and the original main channel has often been realigned, enlarged, and deepened to carrying flood flows instead of allowing them to spread over the flood plain.

Natural stream geometry is no longer present in many channels and therefore fluvial geomorphic tendencies result in high variability in sediment deposition and transport in the main channel. In low slope channels (<1%), the cross section of the channel would fill in developing a narrower and deeper low flow channel. The velocity and depth of annual flows and hence annual sediment transport capacity would increase so that the sediment deposition would occur closer to the tidal margin. The stream may be considered geomorphically "stable" when the low flow channel's transport capacity matches the watershed sediment input. In this condition, there may be an opportunity for increased wetland or riparian habitat, but the stream channel would have reduced much of its flood water conveyance capacity for which it was originally designed.

The District is obligated to maintain flood water conveyance capacity on modified channels. This means sediment removal and hence keeping the channels in a geomorphically unstable state. The EIR describes the environmental effects associated with maintenance.

Commenters' observation that increasing flood plain encroachment, channel hardscape, and modification usually lead to increased maintenance needs is technically correct. The District's Stream Maintenance Program addresses this condition that exists in the Santa Clara County service area at present, including several hundred miles of modified channels that are geomorphically unstable and require maintenance.

The District evaluated the "geomorphic alternative" to maintenance and found that for the most part, the necessary changes to channel configuration and restoration of flood plain size are of a cost, scale, and environmental impact normally associated with a Capital Improvement Project, and hence are outside of the scope of the routine maintenance addressed by the SMP. Even as projects are reviewed for geomorphic redesign, (including planning, design and construction phases which can take more than 10 years or longer if funding is not available), would still require routine maintenance in the meantime.

The District can use fluvial geomorphic principles in future project design which may confer environmental benefits and reduce the need for routine maintenance. Such changes would occur on a stream reach by stream reach basis and could not be implemented District-wide to provide the level of service which is the purpose of the SMP.

May 11, 2001

Ms. Cindy Roessler
Project Management Unit
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118-3686

Re: Draft Environmental Impact Report and Stream Maintenance Program for the Multi-Year Stream Maintenance Program

Dear Ms. Roessler:

On behalf of the Santa Clara Valley Audubon Society and our 4000 members in Santa Clara County, I would like to thank you for the opportunity to comment on the Santa Clara Valley Water District's (District) Draft Environmental Impact Report and Stream Maintenance Program for the Multi-Year Stream Maintenance Program (DEIR). While we applaud the District's effort to assess and address the cumulative impacts of their stream maintenance activities by producing a programmatic DEIR and compensatory mitigation plan, we do have a number of suggestions that would greatly improve the project.

AU

PROJECT-BASED COMMENTS

1 Because the DEIR is programmatic in its approach and will dictate the methods of stream maintenance for at least the next 10-20 years, it is essential that the District consider the overall impacts of their activities on a long-term basis. By applying the ideals of stream stewardship early in the planning process, the District can find more natural, long-term answers to the problems of flood control and stream maintenance. The District should move towards the development of natural stream channels that do not require as much maintenance, particularly in South County where sufficient land areas still exists. This could include wider, well-vegetated channels with adjacent flood plains and sufficient space to meander. While this may require a change in land use planning or the purchase of agricultural and other lands, it would result in a decreased threat of flood and increased habitat value. The project should include a component that evaluates, and eventually initiates, this more balanced approach to stream and watershed management.

The District should aim to go beyond compensatory replacement value by truly striving for an overall watershed vision. Planning maintenance activities with this vision in mind now will allow for greater opportunities to preserve and restore our natural systems in the future. When

AU

-2 Santa Clara County voters supported and approved the District's Measure B, they did so with the expectation that maintenance activities would include environmentally sensitive measures. Voters were sold on the idea of a ***natural*** stream maintenance program and that should be the District's focus with this project. While the mitigation package does demonstrate a level of environmental sensitivity, it only does so on a compensatory basis. The project should reflect the vision of a more natural watershed by including commitments to improve the design of future projects, change current projects, and adjust maintenance activities to reduce the need for future maintenance and intrusion in the natural setting. By including measures to introduce natural flood protection, the project can enhance the watershed while decreasing the overall need for stream maintenance.

Herbicides

Our major objection to this project is the reinstatement of herbicide use in South County's Pajaro River Basin (DEIR, Impact Bio-6). While herbicides were originally prohibited in this area due to a concern over contact with agricultural fields, the environmental concerns of today remain a valid reason to continue using mechanical means of vegetation removal only. The DEIR lists a number of reasons why the District now feels prepared to resume herbicide use in the Pajaro River Basin. None of these comments, however, speak directly to the deleterious effect that herbicides can have on the in-stream environment. These impacts may include, but are not limited to, impacts to non-targeted vegetation and wildlife, an overall and undiscriminating loss of vegetation, and the emergence of herbicide-tolerant vegetation (which may necessitate the introduction of stronger, more lethal herbicides).

Herbicides, even when used at the correct concentration and as per the manufacturer's directions, are designed to kill. They destroy vegetation, native and non-native alike, and damage valuable wildlife habitat. In particular, the introduction of herbicides to the in-stream environment could have alarming impacts to the fisheries and other wildlife that are dependent on the stream for habitat or as a water supply. The ability of a stream to carry and spread a given herbicide further increases the threat of these poisons.

-3 The fact that the DEIR identifies herbicide use as one out of only three significant unavoidable impacts in the preferred project demonstrates the potential danger associated with the use of herbicides. If the District were to adopt any of a number of other alternatives, this significant and potentially damaging impact could, in fact, be avoided. In the interest of environmental stewardship and to follow through on the District's Ends Policy to 1.2.2.2 and 2.1, the District should make all attempts to eliminate the significant impact caused by herbicides. By simply continuing the current mechanical practices in the Pajaro River Basin, the District could significantly reduce the potential impacts on vegetation and wildlife habitat that result from herbicide use.

Biological Impacts

In addition to herbicide use, we are also concerned with the biological impacts associated with the potential fragmentation of wildlife habitat caused by the cumulative impact of sediment removal and vegetation management (DEIR, Impact Bio-4) and the significant adverse impact on

AU

wildlife and fisheries habitat caused by a loss of riparian functions and value (DEIR, Impact Bio-5). While the DEIR recognizes both of these impacts as significant and unavoidable and offers off-site compensatory mitigation for Bio-4, we feel obliged to reinforce the potential for ill-effects from these impacts.

-4

The majority of riparian species are most successful in dense areas of habitat that allow for protected travel between nesting and foraging areas. Fragmenting and isolation threaten species and further increase their vulnerability to external forces (e.g., predation, lack of food supply). Combining this fragmentation with a decrease in the quality of riparian habitat has the potential to substantially impair the success of a given population, and thus of an ecosystem.

-5

Habitat loss is one of the principal factors leading to both the loss of individuals of a species and to a decrease in overall biodiversity. By fragmenting and marginalizing wildlife and fisheries habitat, the District will only further the loss of valuable wildlife habitat. Because of the high potential for harmful impacts, it is our hope that the District will conscientiously and aggressively follow through on the prescribed BMPs and mitigation efforts. Next, a monitoring program should be implemented to verify that impacts are, in fact, less than significant. Further, the District should commit now to a secondary mitigation plan to ensure habitat protection, if and when the project's BMPs fail to minimize impacts to a less than significant level. The key here is a current commitment to less than significant impacts over the life of the project. If impacts are properly minimized through the BMPs, the secondary mitigation plan would not be triggered.

Impacts from Land Use

-6

Clearly, land use decisions made by cities throughout the region greatly impact the need and scale of flood control and stream maintenance. As our county grows and develops, we continue to encroach on streams and riparian areas. In doing so, we build on the flood plain and decrease the opportunity for ***natural*** flood channels. As such, the District should include in the DEIR (or Record of Decision) a commitment to speak out on land use decisions that might negatively impact flood control and constrain stream maintenance options. The recent Land Use Summit was a step in the right direction, but the District must do more to ensure that land is available to implement balanced, environmentally sensitive flood control plans. In planning for the future of stream maintenance, certainly the District should be pro-active, as well as re-active. The SMP should include a component of preventative work wherein the District tracks and comments on city and county plans to develop along streams and riparian areas, with the goal of minimizing the need for stream maintenance over time.

DEIR-BASED COMMENTS

In addition to the above, project-based comments, we also have a number of questions based on the text of the DEIR. Please clarify or consider the following questions and suggestions:

-7

- As is clearly stated above, we oppose the use of herbicides in the Pajaro River Basin, which is a key component of the DEIR's preferred project – the Multi-Year Alternative. In reviewing the other alternatives, however, we find it difficult to recommend one, because it seems that the DEIR's monetary comparison is inaccurate. Table V-4 states that in the Multi-

AU

Year Alternative the cost of vegetation management in the Pajaro Basin would total $642,480; Pajaro River Basin Alternative – $2,699,270; and No Herbicide Alternative (Santa Clara Basin and Pajaro River Basin)) – $3,079,670. We find it curious that these numbers are so high. Because the DEIR recognizes financial limitations as on of the main distinctions between the above-mentioned alternatives. this information is of vital importance. We feel the information supplied in the DEIR is not sufficient to allow the public to weigh the various alternatives. Please clarify/correct the figures in the table, so that we may identify and support one of the project alternatives.

- -8 We applaud the District's decision to include the eradication of 125 acres of *Arundo donax* as a part of the compensatory mitigation effort. Has the District done preliminary studies or mapping of the species to identify the total number of acres impacted by this species in the Santa Clara and Pajaro River Basins? If so, how many acres were found to be impacted by the species? If not, we suggest taking advantage of the mapping effort to note and map the location of one or two additional non-native invasive species, such as cape ivy and tamarisk. Lastly, in order to lessen impacts that may be related to the removal of *Arundo donax*, such as bank destabilization, we suggest that the District follow-up with revegetation efforts using native riparian species.

- -9 Table IV-B-7 identifies the total stream vegetation impact on the Pajaro River Basin as 46 acres. Elsewhere, the DEIR documents 57 acres of impacts. What is the meaning of this difference? Which number is accurate?

- -10 Mitigation BMP 3.19 "Develop a Biodiversity Monitoring Program" should include not just a passive monitoring effort, but also a preservation component that puts the efforts of monitoring to good use.

- -11 Page IV-B-78 states that "although herbicide spray is carefully limited to target vegetation, the spray may directly contact the skin of amphibians." It then goes on to say that it is, "difficult to assess the magnitude of the impacts of herbicides and rodenticides on non-target wildlife." If the impacts cannot be assessed, how can the District decide whether this impact is significant or not (particularly considering that listed amphibians. such as the Red-legged Frog and the Foothill Yellow-legged Frog are known to occur in some maintenance areas)? Further, how can the District determine that the prescribed BMPs will in fact reduce these unknown impacts to less than significant? Further, because of the increased threat that herbicides have on amphibians, we suggest that the District eliminate herbicide use, not just in the Pajaro River Basin, but also in any streams that are suspected to house listed amphibians, including the Red-legged or Foothill Yellow-legged Frog.

- -12 It seems that some of the BMPs identified for mitigation of the same impact may conflict with one another. For example, Bio-10 identifies the use of both 3.7 "Salvage Native Aquatic Vertebrates from Dewatered Channels" and 3.12 "Maintain Low-flow Channels." It does not seem that both BMPs can be implemented at the same time. Are we to assume that the list of BMPs for all impacts will be implemented based on the District's discretion? If so, this implies that on a given project the District may choose not to implement one or more

AU -12 BMPs listed in the DEIR. Is the list of BMPs after each impact meant as a list of possible means to lessen the impact or as a list of BMPs that will all be used in tandem?

-13
- In discussing the Tidal Wetland Restoration Project, the DEIR states, "A major commitment will be needed to control the spread of peppergrass and others invasive species." (DEIR, VI-8) Does the District intent to include this commitment as a part of the compensatory mitigation's tidal wetland restoration project? If doing so would be vital to the success of this restoration project, as the DEIR seems to suggest, the District should make that commitment in this DEIR.

The stream maintenance program holds tremendous potential to either increase or decrease the value of surrounding habitat. The District's visions and actions will determine which course our streams will follow. By including a truly long-term perspective and goals of natural, meandering streams, the District can accomplish both flood protection and wildlife preservation.

Thank you for your time and attention to these comments. If you have any questions, please contact me at (408) 252-3747.

Sincerely,

Jennifer Peritz
Conservation Assistant

Responses to Comments in Audubon Letter

AU-01

Comment is noted. See Master Response regarding Geomorphology which discusses the District's evaluation and initiation of new designs and approaches for flood control channels. While the District may be able to implement some of the commenter's suggestions for some individual channels, they would not constitute routine maintenance and on a District-wide basis, would require a massive Capital Improvement Project that is therefore beyond the scope of alternatives to the proposed Stream Maintenance Program. See also response to RWQ-SF-04.

AU-02

Refer to Chapters 3 and Chapter 4 of the SMP for the environmental review protocols and resource protection measures. The comments to improve future designs is noted. The District's commitment to a vision of a more natural watershed is reflected in the Board's Governance Policies. Also see response to WW-28. Current flood protection projects are planned, designed, and constructed for multiple objectives/uses with input from the community and various agencies. However, this work is separate from the scope of the proposed Stream Maintenance Program. See also response to RWQ-SF-04.

AU-03

The EIR serves the purpose of describing the environmental effects of a range of alternatives which will meet all or most of the project objectives. The FEIR has been revised by District staff in consideration of this and other comments, and staff recommend the Modified Pajaro River Basin Alternative as the Preferred Alternative. The final selection of an alternative will be made by the District's Board of Directors balancing the project objectives, District policies and environmental effects. See also master response regarding alternatives.

AU-04

The District concurs. As noted by this comment, the discussion of Impact Bio-4 on pages IV-B-69 through 71 of the EIR describes the impact to wildlife caused by fragmentation. Please also see the discussion of fragmentation potentially caused by bank protection that is included on pages IV-B-71 through 72 of the EIR.

AU-05

The annual lessons learned meeting and annual report will play a key role in following through and monitoring the implementation of BMPs and compensatory mitigation measures. As described on pages 3-4 and 3-5 of the SMP, BMPs will be reviewed and updated as necessary, and the status of the mitigation programs will be reported on an annual basis. See also response to comments EPA-12 and RWQ-SF-27.

No secondary mitigation plan is proposed in the event that BMPs fail. Instead, BMPs will be revised to meet the original objective of avoiding or minimizing effects.

AU-06

As described on page VI-10 of the EIR, when the District reviews new projects proposed within 50 feet of a creek under District Ordinance 83-2, it comments on design aspects which might affect flood control, water supply, water quality, and stability of the creek banks, including activities which might preclude necessary stream maintenance work. The District, as a responsible agency under CEQA, comments on the same topics when it reviews environmental documents prepared for such projects and General Plan updates. However, the District does not have the authority to require design changes for indirect effects such as increased runoff.

AU -07

Table V-4 on page V-23 of the EIR has been reviewed and several errors have been discovered. These errors consist mainly of incorrect spread sheet formulas, which despite several reviews of the data, went undetected prior to the release of the draft EIR. Examples of the types of errors included using the total area column in a formula rather than the work area, and problems with products being off by a decimal point, both of which inflated the final numbers. The table has been edited to correctly reflect the accurate cost estimates, allowing for a realistic review of the differences in the alternatives. Revised Table V-4 is included in the list of revisions to the EIR.

AU-08

See the Mitigation Monitoring and Reporting Program (MMRP) for a preliminary map of giant reed locations which shows major infestations based on initial surveys. The total amount of giant reed in the county is not currently known but is believed to be several hundred acres. The first step in the giant reed control program will be to conduct additional surveys and generate a more detailed map with estimates on the amount of giant reed. As time allows, the District will simultaneously document outbreaks of cape ivy and tamarisk which are observed during mapping and control of giant reed. See response to comment FWS-02 regarding revegetation associated with giant reed control.

AU-09

These numbers measure different categories and have been revised in the FEIR. Referring to the equivalent new values for the Modified Pajaro River Basin Alternative in the FEIR, there are 45 acres stream channel area in which vegetation management is undertaken in the Pajaro River Basin. However, only 38 of the 45 acres are assigned as impacts under the one-time accounting method for temporary but repetitive impacts (described on page IV-B-62 of the EIR), because impacts are assigned to sediment removal only, in those channel reaches where both sediment removal and vegetation management are undertaken. Of these 38 acres of impact assigned to vegetation management in the Pajaro Basin, 4 acres are to freshwater wetland and 34 acres are to riparian vegetation.

AU-10

Because stream flow and flood control capacity need to be maintained, it is not always feasible to preserve all habitat where special-status species are found and some impacts may occur due to the SMP. However, the District is committed to avoiding or minimizing impacts to biological resources as much as possible through the use of BMPs. BMP 3.19, *Develop a Biodiversity Monitoring Program*, establishes a biodiversity monitoring program to provide information about habitat use and distribution of special-status species in Santa Clara County. The monitoring results will be incorporated into the District's Geographic Information System (GIS) database and help with planning future maintenance activities. Data collected will be put to good use by identifying where special-status species are found and if future maintenance activities are required in those areas, appropriate avoidance or minimization measures will be implemented.

AU-11

The impact on red-legged frog is minimized by avoiding known frog activity areas and by using herbicides of low animal toxicity. The District uses a gylphosate formulation registered for aquatic application (AquaMaster by Monsanto, formerly known as Rodeo) and a surfactant R-11. This combination is used extensively throughout California for control of invasive giant reed (*Arundo donax*). The California Department of Fish and Game, in conjunction with US EPA and other parties conducted tests of glyphosate/R-11 application effectiveness and toxicity in 1998. California Department of Fish and Game, 1998, unpublished communication by Joel Trumbo, "Final Report U.S. Environmental Protection Agency Grant Control of Giant Cane in Riparian and Wetland Areas of Northern and Central California". That study concluded "Rodeo® with R-11® applied aerially to control giant cane poses no significant acute toxicity hazard to nontarget fish and frog species. Herbicide and surfactant residues were 100 to 10,000 times less than would be necessary to produce acute mortality." The District's selective hand application probably results in less actual herbicide entering the water than from helicopter broadcast spray.

BMP 3.20, *Minimize Adverse Effects of Herbicides on Non-target Species*, provides guidelines to minimize impacts on non-target species from the use of herbicides. Herbicides will be applied by a state Qualified Applicator following the label restrictions (BMP 4.7, *Herbicide Use Requirements*), any advisories published by the California Department of Pesticide Regulation, the County Agricultural Commission, and the EPA bulletin Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County. The recommended use limitation codes (ULC) are listed on page IV-B-92 of the EIR. BMP 3.20, also states that when herbicides are to be used within 1.25 miles of known red-legged frog locations, the District will refer to both the product label for the material being used and the Endangered Species Database maintained by the California Department of Pesticide Regulation and use the lower of the two recommended rates if there is a difference. These BMPs are expected to ensure that California red-legged frog and foothill yellow-legged frog would not be affected by the use of herbicides.

AU-12

The District will determine which BMPs are appropriate for implementing for each maintenance activity. Refer to SMP Appendix G for a discussion on selection of BMPs.

AU - 13

The District will implement an invasive species management program to control the spread of perennial peppergrass and other invasive plants at the Pond A4 Tidal Wetland Restoration site (EIR page VI-8, SMP page 5-5). The program will be detailed in the Operations and Management Plan that will be prepared in association with the mitigation and monitoring plan for the project. It should be recognized, however, that perennial peppergrass is a common plant throughout south San Francisco Bay tidal wetlands, is a significant or even dominant component of brackish marshes in some locations, and is present at some of the sites impacted by routine stream maintenance. Because of its ubiquitous presence in the vicinity of the restoration site, we do not expect to be able to completely exclude the establishment of perennial peppergrass at the site or to be able to eradicate it once it becomes established. Instead, the objective will be to manage the control and spread of perennial peppergrass to a level that corresponds with the success criteria established for the mitigation project.

STATE OF CALIFORNIA - THE RESOURCES AGENCY

Gray Davis, Governor

DEPARTMENT OF FISH AND GAME
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

May 16, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Dear Ms. Roessler:

DFG

Draft Environmental Impact Report
and Stream Maintenance Program Report
for the Multi-Year Stream Maintenance Program
Santa Clara Valley Water District
Santa Clara County

Department of Fish and Game personnel have reviewed the Draft Environmental Impact Report (DEIR) for the Stream Maintenance Program (SMP). The multi-year SMP proposes to conduct maintenance activities on modified and unmodified creeks and canals within the Santa Clara Valley Water District (District) jurisdiction in Santa Clara County. Maintenance activities included in the DEIR are sediment removal from creeks, sediment basins, fish ladders, stream gage stations, and water supply canals; vegetation management along and adjacent to creeks and canals; and bank protection. The SMP area consists of 191 streams for approximately 828 miles and 10 canals for approximately 41 miles.

In the Plans, Ordinance and Policies Section, the DEIR states that "the District is currently planning to negotiate revisions to these MOUs [sic] to cover the relevant activities and locations of work in the Stream Maintenance Program." As a point of clarification, the Department will write one new Memorandum of Understanding (MOU) to cover all activities described in the SMP; we will not revise the MOU's currently in existence. The new MOU will be for a period of five years. At the end of five years, either a new MOU will be executed or the existing MOU will be renewed for another five years to coincide with the length of the U. S. Army Corps of Engineers (Corps) permit for this project. 1

In the Biology section, under California Endangered Species Act (Page IV-B-29) the DEIR states the following:

For species that are listed under both the Endangered Species Act (ESA) and California Endangered Species Act (CESA), take authorization under Section 7 of ESA could also suffice for take authorization under CESA, if the Department finds that

CDFG the Federal permit adequately protects the species. If the Department believes additional protection measures are needed, a Section 2080 permit would need to be obtained.

-2 As a point of clarification, it is correctly stated that a Section 2081 permit would be obtained if the Department required protection measures not included in the Federal Biological Opinion (FBO) issued under Section 7 of the Federal Endangered Species Act (FESA). However, if the Department concurs with the measures in the FBO, the District would need to obtain a permit under Section 2080.1(a). This permit would state our concurrence with the measures in the FBO. The Department recommends you include this permit information in the DEIR.

-3 In the same section, under Special-Status Wildlife, San Francisco Garter Snake (SFGS) (Page IV-B-46) the DEIR states "in Santa Clara County, San Francisco garter snakes currently are known only to occur in the San Francisquito and Adobe Creek watersheds in the northwestern portion of the District." It is highly unlikely that SFGS occur in these areas. The Department recognizes approximately six extant populations of the species, all of which are located in San Mateo County. If the District has recent documentation of the species occurrence in these areas, the Department would be interested in those data. If data supports the District's position that the species is present in the District, where maintenance activities are planned, then the District would be required to obtain an agreement under Section 1802 of the Fish and Game Code, that would set conditions to take of SFGS, a fully protected species. The Department recommends that this permit information should be included in the DEIR.

-4 In the same section, under California Clapper Rail, and Saltmarsh Harvest Mouse, the DEIR recognizes that both species are fully protected by the State. Given these species are present within the District jurisdiction, the DEIR should acknowledge that an agreement under Section 1802 to prevent take will be required for maintenance activities under the SMP. This permit is independent from any other document (e.g., MOU, etc.) the District obtains from the Department for the SMP.

-5 In Appendix H, Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities, it is stated that "...over the 10-year life of this proposed permit, some 10 miles of the approximately 1,650 miles of bank under District jurisdiction can be expected to be modified, and some increment of exiting riparian vegetation can be expected to be lost." In the Project Description, the DEIR states that "the SMP area consists of 191

CDFG -5 (Cont.) streams for approximately 828 miles and 10 canals for approximately 41 miles." The Department recommends the correct area of the SMP should be referred to in Appendix H for consistency. Over the course of the last several years, regulatory agency personnel have met many times with District staff to address the issues of impact and mitigation associated with the SMP. Early in the process, the regulatory agencies conceded that the District would only have to mitigate on a one-time basis for the impacts associated with the SMP, regardless of impacts having the potential to occur multiple times over the course of the 10-year permit. The last two iterations of an impact assessment and mitigation commitment for the SMP (dated January 5 and February 14, 2001) met with unfavorable comments -6 from the regulatory agencies. The Department's primary objection to them was that impacts were under assessed and that every opportunity by the District was taken to claim mitigation credit for minimizing impacts. As it continues to be stated in Appen-dix H, this approach remains unacceptable to the Department.

In Section 3.3, Bank Protection Techniques, a list of techniques are categorized. Techniques that completely cover the bank with hardscape and preclude all riparian vegetation (such as sacked concrete, articulated concrete mat, etc.) are defined as having limited biotic potential. Techniques that partially cover the bank with hardscape and allow for some riparian revegetation (such as large boulder revetment, concrete crib walls, etc.) are -7 defined as retaining biotic potential. Any technique that precludes riparian vegetation and permanently removes the bank from any sort of biotic functional use, should be considered as eliminating biotic potential. And any technique that compromises biotic potential should be considered as limiting biotic potential. Only those techniques that use native material and allow for full riparian revegetation should be considered as retaining biotic potential.

-8 In addition, this same section defines habitat qualities for both fisheries and riparian resources. These quality categories do not account for any cumulative impact resulting from 10 miles of bank being modified. While the physical impact of a particular project may be small, the cumulative impact has the potential to be quite large. This is a point all the regulatory agencies have expressed numerous times during meetings on the SMP. So long as there are outstanding impacts, the DEIR should not refer to bank stabilization projects as either beneficial or neutral. -9 Impacts resulting in permanent loss of bank should be mitigated for at a 3:1 ratio to insure that both the physical and temporal loss is mitigated for. Impacts that are minimized by using techniques

DFG

-9 (Cont.) that retain the majority of biotic potential should be mitigated for at a lower ratio. The Department will only consider mitigation credit when the District would employ a technique that retains the majority of biotic potential and enhances the resource beyond that which existed before the impact.

In Section 4.2, Stream Side Impacts (Page 6 of 8), there are two mitigation ratios listed for different stream side impacts. -10 Is the 1:1 mitigation ratio for Shaded Riverine Aquatic impacts? If that is the case, then this should be identified in the DEIR. As a point of clarification, the Department requires a mitigation ratio of 3:1 for riparian impacts, regardless of the tree diameter at breast height. If a project is small, then the 3:1 ratio is applied based on the number of trees impacted. If the project is large, then the 3:1 ratio is applied based on the area of impact. The Department may consider a lower ratio if there are large stands of monotypic, non-native vegetation. The DEIR should incorporate this information.

In the Planting Techniques section, there is a list of -11 techniques provided. In order to employ the Department's 80 percent success criteria for revegetation (discussed below in Number 8), we require trees be planted on an average of 10-foot centers and shrubs be planted on an average of 5-foot centers. In addition, the Department does not allow the use of Dri-Water. Information exists that indicates it is a less than reliable means of irrigation.

In Appendix G, Implementation of Best Management Practices Under the Stream Maintenance Program, the DEIR lists several Best Management Practices (BMP's) under specific categories that shall be implemented under all or some maintenance activities discussed in the SMP. The Department has comments on several of the BMP's as stated. They are as follows:

1. Water Quality BMP 1.3 (Page 4): The BMP states that diversion structures "...can be made of various materials..." and that "if earth is used, the downstream and upstream faces shall be covered by a protected covering (e.g., plastic or fabric) if needed to minimize erosion." -12 The Department does not allow diversion structures to be constructed of earth fill in non-tidal areas. We would allow sheet piles, inflatable dams, sand bags, and river run gravel with a fines content of less than 15 percent. Fines are defined as material that is able to pass through a number 20 sieve. We recommend the BMP be amended to include this information.

DFG

-13 2. Water Quality BMP 1.8 (Page 6): Under Number 2, the BMP states that "temporary stockpiles will be isolated" but fails to identify the methods used to do this. We agree this is an appropriate BMP however, but more information on methods is required to determine if this BMP is adequate. Under Number 4, the BMP states that "water shall not drain directly into channels (outside of the work area) or onto city streets without providing water quality control measures." Stockpiles of sediment and soil should be treated the same way with respect to water quality issues. Therefore, we recommend Number 4 be amended to include the same water quality criteria as in BMP 1.9 for soil, "no run-off will be allowed to flow back to [sic] creek."

-14 3. Water Quality BMP 1.10 (Page 6): The BMP states how mercury contaminated soils will not be susceptible to erosion and that they maybe excavated and replaced with clean fill. Presumably, the mercury contaminated soils that are excavated will be disposed of off site in an appropriate landfill. We recommend the BMP be amended to include information regarding the disposition of mercury contaminated soils that are removed during stream maintenance.

-15 4. Water Quality BMP1.11 (Page 7): As stated, Number 1 in this section does not adequately address protecting water quality when concrete is used. The Department has the following criteria for protecting water quality depending on the type of concrete used:

a) Dry sacked concrete shall be excluded from the wetted channel for a period of 30 days after installation. Each day during that time, it shall be watered without causing runoff to the live stream.

b) Wet sacked concrete shall be excluded from the wetted channel for a period of two weeks after installation. During that time, the wet sacked concrete shall be kept moist, and runoff from the wet sacked concrete shall not be allowed to enter a live stream.

c) Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff from the wet concrete shall not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck BT Reservoir Grade) may

CDFG -15 (Cont.)

be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

We recommend that the BMP be amended to include these conditions to protect water quality when concrete is used.

5) -16 Water Quality BMP 1.12 (Page 7): The BMP states that groundwater could be pumped "...onto areas with vegetation to remove sediment prior to the water entering the creek." The Department has allowed this in the past and would do so in the SMP so long as the water is pumped in such a way as to not cause erosion around the vegetation. We recommend the BMP be amended to include this clarification.

6) -17 Vegetation BMP 2.2 (Page 9): The BMP states that "if new access points are necessary, they shall be constructed in a manner that minimizes impacts to streams..." The SMP describes proposed routine creek and canal maintenance. The SMP is not intended for new construction of facilities, of which access roads are one. Maintenance of existing access points is a routine activity. However, we do not concur that new access points are ongoing maintenance activities. Any new access point construction in the bed, bank, or channel of a stream, would require a separate Streambed Alteration Permit from the Department. We recommend that the BMP be amended to remove language that relates to new access point construction.

7) -18 Vegetation BMP 2.6 (Page 10): As stated, no non-native or weed seed materials shall be used as mulch. We concur with this BMP and recommend you add that material from sources outside the District be certified by the supplier as being free of these species.

8) -19 Vegetation BMP 2.9 (Page 11): As stated, there is no time line or success criteria for maintaining revegetation sites. The Department has the following criteria, based on planting densities:

a) Revegetation monitoring shall be conducted annually for a period of five years. Planting densities shall be 10-foot centers for trees, 5-foot centers for shrubs, and willow sprigs shall be placed on 1-foot centers. The following success criteria shall apply:

1. At the end of three years there shall be 80 percent or greater survival of all planted material. If at the end of three years there is less than 80 percent survival, all dead plants shall be replaced and a contingency plan correcting maintenance problems shall be submitted to the Department.

2. At the end of five years, there shall be 80 percent survival.

b) Revegetation monitoring shall be conducted annually for a period of five years. Restoration plantings with densities that are less than those described above shall have the following success criteria:

-19

1. At the end of each year, all dead plants shall be replaced. If the number of dead plants exceeds 10 percent of the total number of plants installed, then the dead plants shall be replaced and a contingency plan correcting maintenance problems shall be submitted to the Department.

2. At the end of five years, there shall be 100 percent survival.

Given that all mitigation is being done on a one-time basis, it is important that success criteria be incorporated into the BMP that reflect the standards applied to other projects. We recommend the BMP be amended to reflect these standards.

-20

9) Wildlife and Fisheries BMP 3.2 (Page 13): The BMP states that if adequate buffers are established around trees with nesting birds, then work would not be delayed. We recommend expanding this BMP to include the kinds of buffers under consideration. Without that information we cannot determine if the BMP adequately protects nesting birds.

10) Wildlife and Fisheries BMP 3.4 (Page 13): The BMP states that "sediment from the San Francisco Bay Watershed, including that for reuse, will not be removed to areas any farther south than Coyote Valley or outside of the San Francisco Bay watershed unless previously authorized by CDFG." Any sediment, including sediment removed in the southern Coyote Valley should not be removed to areas or stockpiled any farther south than Metcalf Road in south San Jose. Chinese mitten crabs are very efficient at moving overland. The southernmost portion of Coyote Valley is in

DFG

-21

close geographic proximity to the Llagas Creek watershed which is a sub watershed to the Pajaro River, a Monterey Bay tributary. Stockpiling or using sediment potentially containing crabs, in this area runs an unnecessary risk of inoculating the area with more crabs that may move overland into a new, previously uninhabited, basin. Therefore, we recommend the BMP be amended to include the limitation of use and stockpiling of sediment in the San Francisco Bay Watershed to Metcalf Road and points north. In addition, we recommend the BMP be amended to remove the language stating that the Department might authorize use or stockpiling outside of the San Francisco Bay Watershed, since it is highly unlikely that we would have any sound biological reason for such an authorization.

-22

11) Wildlife and Fisheries BMP 3.9 (Page 14): The BMP states that "when woody material is removed, priority will be given to reuse of the materials in bank protection projects" and that "woody materials may also be used as mulch." In order to be consistent with Vegetation BMP 2.6 (Page 10) we recommend that the BMP be amended to state that eucalyptus and other species with allelopathic compounds will not be used in bank protection projects or in mulch.

12) Wildlife and Fisheries BMP 3.12 (Page 15): The BMP states that "this measure does not apply to tidal areas or to non-tidal streams with no fish value as designated on the District GIS Fisheries coverage." Typically, when a channel is altered, regardless of fisheries values, the Department requires the following:

-23

a) If a stream channel has been altered during the operations, its low flow channel shall be returned as nearly as possible to its natural state without creating a possible future bank erosion problem, or a flat wide channel or sluice-like area.

We recommend that the BMP be amended to remove the reference to fisheries values, and to include our criteria.

13) Wildlife and Fisheries BMP 3.15 (Page 15): The BMP states that "temporary fills, such as for access ramps, diversions structures, or cofferdams, shall be completely removed upon finishing the work, except where clean river run cobble/gravel was used" and that "when appropriate, some or all of such material may be left in the channel to provide a substrate for aquatic species." The Department requires the

DFG

-24 complete removal of all material used to construct these structures, regardless of the material. This is as SMP, not a gravel enhancement plan. Therefore, it is not appropriate to leave structures associated with maintenance in the channel. In addition, river run gravel, with a fines content of less than 15 percent is not appropriate material to be left deliberately in streams. The resulting sediment deposition would be counterproductive to the minimization of sediment removal and stream impacts. We recommend the BMP be amended to delete language allowing for retention of maintenance structures.

14) Wildlife and Fisheries BMP 3.17 (Page 16): Under Number 1 of the BMP, reuse of sediment and gravel is discussed but not defined. BMP 3.16.1 states that gravel reuse would occur to replace gravels lost during stream maintenance. However, there is no definition of how sediment is proposed to be reused. -25 We recommend that the BMP be amended to define sediment reuse, including testing to determine if the sediment is appropriate for reuse. Under Number 2 of the BMP, spawning gravel supplementation is discussed. This is not a maintenance activity. Therefore, we recommend that the BMP be amended to remove this discussion under Number 2.

15) Wildlife and Fisheries BMP 3.18 (Page 16): This BMP states the area in which herbicides will be used. The Department -26 recommends that the BMP be amended to include language that limits the use of herbicides to three days or more before a predicted rain event. This approach reduces the risk of herbicides and surfactants washing off vegetation and running off into the channels during a rainfall event.

16) Wildlife and Fisheries BMP 3.21 (Page 18): Under Number 1 of the BMP, it states that "...lethal rodent control methods, shall not be used unless specifically determined safe for SMHM [saltmarsh harvest mouse] by a qualified biologist." -27 Do lethal rodent control methods mean the use of rodenticide only? If so then it is questionable that there would ever be a circumstance where they would be safe in SMHM habitat. In addition, a qualified biologist should be defined. We recommend that Number 1 of the BMP be amended to include a description of lethal rodent control methods and a description of a qualified biologist as a biologist who holds or is named in a Federal 10(a)1(A) permit to handle SMHM. Under Number 2 of the BMP, it states how fumigant impacts to burrowing owls shall be minimized. They are inadequate in protecting owls from impact and they eliminate habitat for

-27 (Cont.) the owls by controlling rodents. The Department recommends that the BMP be amended in Number 2.a, to state that on an annual basis, prior to rodent control measures being employed, a qualified biologist shall conduct protocol surveys to determine the presence of burrowing owls. In addition, to better protect habitat, the Department recommends that the BMP be amended in Number 2.b, to state that a one-half mile buffer zone around burrowing owl locations will be established. Under Number 3, there is no description of how often or how long the applicator shall remove carcasses after poison is applied. If treatment is ongoing, then checking for dead animals should occur at least once a week. This information needs to be defined in order to determine if the BMP is adequate. In addition, any dead raptors or other wildlife that are found should be turned over to the Department's pesticide lab for analysis. We recommend that the BMP be amended to include this information.

17) -28 Hazardous Materials BMP 6.4 (Page 22): The BMP states that "no fueling shall be done in the stream channel and floodplain." Where will fueling be done, at the corporation/maintenance yard or on levees? Any fueling done in the field should be done with an approved containment device in use. Fueling equipment away from channels and floodplains does not preclude a fuel spill from reaching either place. In addition, a fuel spill could kill vegetation in the vicinity. Therefore, we recommend that the BMP be amended to include a description of where fueling will occur and, if it occurs in the field, what kind of containment will be used.

18) -29 Hazardous Materials BMP 6.5 (Page 22): The same comment in Number 17 above, applies where as well. We recommend that the BMP be amended to include a description of where servicing/repairs will occur, and if that occurs in the field, even under emergency situations where the equipment breaks down, there needs to be a description of what kind of containment will be used.

-30 Under Chapter 2 (Page 2-6), the draft SMP describes the herbicides that are proposed for use. The draft SMP states that "Aqua Master is approved for use in aquatic areas..." Herbicides approved for use in aquatic areas still need a surfactant or spreader/sticker mixed with them in order for them to work efficiently. These surfactants or spreader/stickers are toxic to aquatic organisms. Therefore, expanded use of chemicals in the

-30 (Cont.) county around streams is not preferred. The District proposes to use herbicides in the Pajaro River Basin, a practice which it discontinued years ago. Given the presence of steelhead in this basin, there is a concern that pesticide use could adversely affect the aquatic environment. In addition, hand removal of vegetation allows the vegetation to grow back which creates some lost habitat. In the case of herbicides, the vegetation is completely killed with no immediate opportunity for regrowth. For these reasons, the Department prefers the Modified Pajaro River Basin Alternative.

Under Chapter 5 (Page 5-11), the draft SMP states that "...the District would purchase approximately 920 to 1,210 acres of land and conservation easements to preserve, protect, and improve streams and their associated watersheds in the county" as compensation for non-tidal stream impacts. In meetings the District has proposed that these areas might include the upper, undevelopable reaches of the watersheds that are far removed from the place where the impacts are occurring on the valley floor. Protecting the upper part of a watershed that is unlikely to be developed, does not address the on going need for habitat retention on the valley floor. In addition, if these lands are going to be managed by regional entities whose primary goal is recreation, this does not necessarily constitute protection. Recreation can have significant impacts on watersheds and stream corridors. The Department recommends that the District continue to look for mitigation areas on the valley floor where impacts are going to occur in this project. -31

In the same Chapter (Page 5-16), the draft SMP outlines the control of giant reed as mitigation for vegetation management. The draft SMP states that "a protocol will be developed to guide where and how initial or subsequent revegetation is undertaken. The removal of giant reed exclusively does not compensate for removal of 78 acres of riparian vegetation. Riparian vegetation, thereby habitat, is being removed. The District is proposing to remove 125 acres of non-native vegetation, yet there is no clear definition of how riparian vegetation will be replaced after giant reed is removed. Typically, giant reed is a species that occurs in disturbed areas with limited riparian vegetation. Removing the species and not revegetating, may leave larger undisturbed areas. A more complete description of the prioritization of giant reed removal and of revegetation after removal is necessary before the Department can determine if this mitigation is adequate. -32

CDFG

-33 The Department appreciates the opportunity to formally comment on this document. However, given the extensive amount of time and effort Department personnel have devoted to this project, it is disappointing that more of our comments, especially those over the course of the most recent past, are not reflected in the DEIR. Due to the continued inadequacy of the impact assessment and mitigation measures associated with the SMP, the Department recommends against certification of the DEIR.

If you have any questions, please contact Margaret Roper, Associate Fishery Biologist, at (408) 842-8917; or Carl Wilcox, Habitat Conservation Manager, at (707) 944-5525.

Sincerely,

for Robert W. Floerke
Regional Manager
Central Coast Region

cc: Ms. Molly Martindale
U. S. Army Corps of Engineers
333 Market Street
San Francisco, CA 94105-2197

Ms. Rebecca Tuden
Environmental Protection Agency
75 Hawthorn Street
San Francisco, CA 94105

Mr. Dale Boyer
Regional Water Quality Control Board
1115 Clay Street
Oakland, CA 94612

Mr. Richard Smith
U. S. Fish and Wildlife Service
2800 Cottage Way, W02605
Sacramento, CA 95825

Mr. Gary Stern
National Marine Fisheries Service
777 Sonoma Avenue, Room 325
Santa Rosa, CA 95404

Responses to Comments in California Department of Fish and Game Letter

CDFG-1

The third paragraph on page III-9 of the EIR is revised as follows:

> The District is currently negotiating new memorandum of understanding (MOU) ~~planning to negotiate revisions to these MOUs~~ to cover the relevant activities and locations of work in the Stream Maintenance Program. As a basis for the negotiations, the District has submitted the Joint Aquatic Resource Permit Application for the San Francisco Bay Area (JARPA) ~~and is requesting the CDFG approval for the SMP be granted for a period of 10 years.~~ This new MOU will be for a period of five years. At the end of five years, either a new MOU will be executed by California Department of Fish and Game (CDFG) or the existing MOU will be renewed for another five years, to coincide with the length of the U.S. Army Corps of Engineers permit for this project.

CDFG-02

The District concurs. Paragraph three on page IV-B-29 of the EIR is revised as follows:

> For species that are listed under both the federal Endangered Species Act (ESA) and California Endangered Species Act (CESA), take authorization under Section 7 of ESA could also suffice for take authorization under CESA, if CDFG finds that the federal permit adequately protects the species. In this case, the District would need to obtain a permit under Section 2080.1(a). This permit would state CDFG concurrence with the measures in the federal Biological Opinion. . .

CDFG-03

The information used in the EIR regarding San Francisco garter snake (SFGS) was from a 1999 report prepared for the District, The Distribution and Status of San Francisco Garter Snake in Santa Clara County (H.T. Harvey and Associates 1999). The report uses historical occurrences, including museum records and published references. Based on this information and as stated in the EIR, the only occurrences of SFGS in Santa Clara County are from the extreme northwestern portion of the county. The report lists four occurrences as follows:

Record Type	Locality	Date	Source
Museum	Palo Alto	1893-1920	**California Academy of Sciences; Stanford University Collections**
Museum		1893-1950	California Academy of Sciences; Stanford University Collections

Literature Cited	San Francisquito Creek at Junipero Serra Road	1971-1983	Barry, S.J. 1994. The distribution, habitat, and evolution of SFGS. Unpubl. M.A. Thesis, Univ. of CA, Davis
Literature Cited	Lake Lagunita, Stanford University Campus	1971-1983	Barry, S.J. 1994. The distribution, habitat, and evolution of SFGS. Unpubl. M.A. Thesis, Univ. of CA, Davis

We recognize that these records may not reflect the current population distribution of SFGS since the most recent record is from 1983. As the commenter states, SFGS may now be extirpated from Santa Clara County.

CDFG-04

Under the Fish and Game Code, species designated as Fully Protected may not be taken or possessed at any time. There are no provisions to authorize the issuance of permits or licenses to allow take of Fully Protected species, except for necessary scientific research or protection of livestock. "Take" is defined in the Fish and Game Code as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

California clapper rail and saltmarsh harvest mouse are Fully Protected. The EIR states that the SMP will not cause direct impacts to individual saltmarsh harvest mouse because they are not expected to occur where maintenance activities occur, or to individual California clapper rail because they are not expected to nest where maintenance activities occur (EIR, pages IV-B-89, -97, -103, and -108). Although the SMP may reduce foraging habitat for California clapper rail, this is not considered "take" under the California Fish and Game Code. Loss of habitat is a significant impact under the state and federal Endangered Species Acts for which incidental take permits are required. (see EIR, pages IV-B-28 and -29.) The District will consult with CDFG to ensure that take of Fully Protected species will be prevented.

The following addition is made to the EIR on page IV-B-29 after the third paragraph:

> California Fish and Game Code
>
> Species designated as Fully Protected under the Fish and Game Code may not be taken or possessed at any time (Sections 3511, 4700, 5050, 5515). The potential of Fully Protected species to be present within the District's jurisdiction would require an agreement under Section 1802 to prevent take.

See also response to CDFG-27.

CDFG-05

Both numbers on page 2 of Appendix E of the SMP are correct. The miles of streams are 828; however, because each stream has two banks, the miles of bank are approximately 1,650.

CDFG-06

Appendix E of the SMP has been extensively revised. The impact matrices have been modified, a new flow chart for alternative selection has been added and a new section 4.3 has been added. Section 4.3 reads as follows:

> Using the bank protection impact assessment matrix to evaluate the environmental impact of bank protection, the District proposes a mitigation ratio of 1:1 by area for impacts or credit according to the assessment in the matrix. In-stream and stream-side impacts are evaluated separately and mitigation or credit are applied to each category. To further reduce the adverse effects of bank protection, the District will mitigate for all impacts for impervious hardscape and for unvegetated rock bank protection at a ratio of 3:1 and for all vegetated rock at a ratio of 1:1 regardless of the determination of the impact assessment matrix. This will account for all direct, potential and cumulative impacts from the bank protection program. All impacts and credits will be measured by area and the ongoing totals will be reported in the annual report. Mitigation for both in-stream and stream-side impacts will consist of revegetation consistent with the Protocol for Revegetation Associated with Use of Impervious Materials for Bank Stabilization in this appendix.

CDFG-07

Comment noted. The matrices have been revised. See new impact matrix following page 8 of Appendix E.

CDFG-08

See response to comment CDFG-06.

CDFG-09

See response to comment CDFG-06.

CDFG-10

See revised BMP 2.8, *Replace Heritage Trees.*

CDFG-11

The District disagrees that specific planting densities should apply to all revegetation sites and that Dri-water should not be utilized. The District has many years of experience installing revegetation sites along streams. We believe that a standard design including specific planting densities, survival criteria and irrigation methods are not appropriate for all sites. Rather, the District prefers to design revegetation according to the conditions present at each site. In some cases, it is a good strategy to densely install cuttings without irrigation, and even though the survival rate of cuttings may be low, good cover can still be established within a few years. At other locations, the soils, slope, amount of light exposure, competition from weeds, and availability of irrigation may indicate planting of 1-gallon size container plants with intensive weeding and irrigation for 2 years. Natural recruitment of native vegetation also occurs.

The District has provided guidelines for revegetation associated with routine stream maintenance practices in several locations. Guidelines for revegetation associated with bank protection are provided in Appendix E of the SMP. The Mitigation Monitoring and Reporting Program (MMRP) provides guidelines for revegetation associated with giant reed control sites. See response to EPA-12 regarding reporting on mitigation sites.

District staff disagrees with CDFG assessment of Dri-Water® as a reliable irrigation system in revegetation projects. The District has used this product successfully on numerous projects and has found success or failure to equate with maintenance of the product as with any other irrigation system.

CDFG-12

See revised BMP 1.2, *Tidal Work Areas* and 1.3, *Dewater/Bypass Water at Non-tidal Sites,* in the revised BMP table.

CDFG-13

The text in the BMP table is meant to provide guidance on how BMPs will be used to protect resources but it is not intended to be a manual for installing each specific BMP. In cooperation with the San Francisco Regional Water Quality Control Board, the District is creating a BMP Manual for use in the field that will have detailed descriptions of how a BMP is constructed and maintained to protect a given resource. This more detailed draft field manual is scheduled for completion in fall 2001. If requested, the District will provide the draft version of this manual to CDFG for comment when it becomes available.

See revised BMP 1.8, *Handle Sediments so as to Minimize Water Quality Impacts,* in revised BMP table.

CDFG-14

See response to SFT-13.

CDFG-15

See revised BMP 1.11, *Concrete Use Near Waterways,* in revised BMP table.

CDFG-16

See revised BMP 1.12, *Groundwater Management*, in revised BMP table.

CDFG-17

District concurs with CDFG assessment that new permanent access points would require an individual Streambed Alteration Agreement.

CDFG-18

See revised BMP 2.6, *Mulching*, and 2.7 *Seeding* in revised BMP table.

CDFG-19

See response to CDFG-11.

CDFG-20

BMP 3.2, *Minimize Impacts to Nesting Birds Via Site Assessments and Avoidance Measures*, is not meant to provide specific sizes for buffers due to the variability of both work-sites and avian species. A qualified biologist will evaluate each site and create site-specific buffers to protect the resources that are identified.

CDFG-21

No revision to BMP 3.4, *Mitten Crab Control Measures*, is recommended because mitten crabs have been found farther south than Metcalf Road, as far south as Anderson Dam on Coyote Creek. The current language of the BMP is believed to provide adequate protection from the spread of mitten crab to areas currently not occupied.

CDFG-22

The District feels that the use of mulch containing allelopathic compounds is appropriate in some situations. Where mulch is being used in a landscape setting as a weed control, the presence of allelopathic compounds is a benefit in achieving the desired outcome. The ecological concern is the use of mulch containing allelopathic compounds in areas that could suppress native volunteers. See revised BMP 2.6, *Mulching,* in revised BMP table and revised BMP Table 3.9, *Retain Woody Materials and Vegetation.*

CDFG-23

See revised BMP 3.12, *Maintain Low-Flow Fish Passage.*

CDFG-24

See revised BMP 3.15, *Restore Pool Configuration of Channel Bottom.*

CDFG-25

See revised BMP 3.16, *Restore Spawning Gravels in Work Site Areas.* Sediment that is to be considered for re-use is tested for hazardous materials, pesticides, and structural gradation. Sediments must meet regulatory and environmental guidelines for the type of reuse under consideration. Some of the ways that sediments have been re-used in the past are for manufacture of asphalt products, structural backfill, topping of disposal sites, landscape applications, and in some limited circumstances for creation of wetlands. Sediments that have less than 15% fines may be used for construction of temporary coffer dams in tidal areas. See revised BMP 3.17 , *Reuse Sediments and Gravels as Appropriate*

CDFG-26

BMP 3.18, *Herbicide Use in Aquatic Areas,* makes provisions for the use of aquatic herbicides in stream areas. The aquatic herbicide schedule limits work to periods between July 1st and October 15th. It is unlikely that rainfall would occur during this period, and any such occurrence would be summer thunder storms which are not predictable. When summer weather conditions make storms seem likely, applications are not made, since they would not be successful. See revised BMP 3.18, which is revised to prohibit in-stream applications when rain is forecast within 24 hours of the application.

CDFG-27

Lethal rodent control methods include traps as well as rodenticides. Selectivity in the use of any lethal control method, whether trap or poison, relies on differences in the biology of the target and non-target species. For example, traps intended for ground squirrel control can include holes sized to allow the smaller Salt Marsh Harvest Mouse (SMHM) to escape. Poison bait for ground squirrels can be placed sufficiently far from tidal marsh areas to reduce the likelihood of SMHM foraging and taking the bait. Such control selectivity is taken into account in the U.S. EPA pesticide protocol cited in the EIR.

The District is committed to abide by the use limitation codes provided by the EPA and CDPR (BMP 3.21, *Minimize Rodenticide Impacts on Non-target Species*) and follow the approved product specifications (BMP 4.7, *Herbicide Use Requirements*). The EPA and CDPR guidelines state that use of rodenticides is limited to sites that are separated by at least 10 yards of barren (or clean cultivated) ground from pickleweed habitat or on the inland side of the levee (ULC 34).

The essence of BMP 3.21, is that impacts to the federally protected SMHM will be avoided by a combination of selective rodent control techniques and pre-application site surveys. The qualified biologist required by BMP 3.21, would be an individual who had adequate training to be able to identify potential habitat of the non target animals; the biologist would not necessarily need to handle individual SMHM and hence would not need a take permit under federal Endangered Species Act Section 10 (a). A federal permit is not a measure of qualification. Revised Figure IV-B-11 is included in the list of EIR revisions. See revised BMP 3.21.

Furthermore, to ensure that rodenticides are not used in saltmarsh harvest mouse habitats, the District is mapping potential habitat throughout the Study Area and maintaining a detailed GIS database (see BMP 3.19, *Develop a Biodiversity Monitoring Program*). At this writing, the District considers potential saltmarsh habitat to include all areas north of Highway 237. As more information is obtained from surveys, rodenticide use may be allowed within this area if the area to be treated is separated by barren ground by at least 10 yards from any potential saltmarsh harvest mouse habitat (vegetated with cordgrass or other halophytic species).

Surveys will be conducted to determine the presence of burrowing owls, and other special-status species, within the District's jurisdiction on an annual basis as stated in BMP 3.19. Surveys for burrowing owls, and other special-status species, in known potential habitat, will be conducted prior to maintenance activities as stated in BMP 3.1, *Minimize Impacts to Special-status Plants and Animals Via Site Assessments and Avoidance Measures.*

Regarding the use of fumigants, establishing a quarter mile buffer around known burrowing owl locations is more than five times the buffer recommended (250 feet) to avoid impacts in the CDFG Staff Report on Burrowing Owl Mitigation (October 17, 1995). We feel that the quarter mile buffer is more than adequate to avoid impacts to burrowing owls from fumigation. The commenter does not provide any justification for increasing the buffer to a half-mile.

The measures to protect burrowing owl are intended to prevent destruction of individuals in burrows. In general, control of rodent populations will indirectly affect burrowing owl because the ground squirrels create the burrows used by the burrowing owl and fewer squirrels would generally mean fewer burrows available to the owls. The purpose of rodent control, however, is precisely to eliminate burrows in levees in order to retain levee structural integrity even though this also minimizes burrowing owl habitat opportunities in the protected areas. Ground squirrel populations are subject to dramatic fluctuations from year-to-year and can be extremely numerous. Eliminating rodent control in order to avoid loss of habitat for burrowing owls could result in a level of damage to channel levees that could lead to failure and hence property damage in the event of a flood. Carcasses will be removed following guidelines provided by EPA and CDPR (ULC 1D). See revised BMP 3.21.

CDFG-28

See revised BMP 6.4, *Vehicle and Equipment Fueling*. See response to comment CDFG-13 regarding development of a BMP field manual which will provide specific methods.

CDFG-29

Stationary equipment, such as pumps and generators, which cannot be readily moved due to their function, will require servicing in place. If equipment breaks down, some repair work may be necessary in the field until the equipment can be removed to a more secure location. See revised BMP 6.5, *Vehicle and Equipment Maintenance.*

CDFG-30

Comment noted. See master response regarding alternatives, specifically regarding the designation of the Modified Pajaro River Basin Alternative as the Preferred Alternative which responds to many of these issues. Also see the master response regarding aquatic herbicides for a discussion of the effects of surfactants.

CDFG-31

The District will continue to search for additional suitable sites for freshwater wetland creation (refer to the SMP, page 5-6, paragraph 3). If these are found, the Stream and Watershed Protection element would be reduced. Suitable sites for freshwater creation are likely to be located in the flatter regions of the county below the reservoirs, in the middle and lower watersheds where most maintenance work occurs. Collectively, the District's compensatory mitigation components other than the Stream and Watershed Protection Program, will provide a large amount (169 acres) of mitigation in the lower and middle watersheds, including 59 acres of mitigation in the Giant Reed Control Program in excess of total program acreage impacts (see revised Table II-7 of the EIR).

In addition, the Stream and Watershed Protection Program will not exclude areas in the middle and lower watershed from consideration. However, because of existing urbanization, fewer opportunities for stream and watershed preservation are likely to occur on valley floors. All acquisition, restoration or management projects, regardless of their position in the watershed, will benefit local stream resources by meeting the Stream and Watershed Protection project selection criteria (see the MMRP). The available opportunities will be further evaluated to ensure selection of those parcels and projects that provide the most environmental benefit. Watershed position will be among the priority considerations, with a location in the lower watershed recognized for high value.

Regarding potential recreational use of acquired land, in cases of partnership acquisitions, the District's contribution to an acquisition will stipulate that future land use and management within the mitigation credit area be consistent with the protection of stream resources (see the MMRP). Planned future land use for the entire parcel, outside the mitigation credit area, will also be considered in determining project priority. As stated in the comment letter, use of the land for recreation does not necessarily constitute protection. On the other hand, use of the land for recreation does not necessarily eliminate the potential for stream and watershed protection. Some types of recreational use may be consistent with the program goal. This will vary on a case by case basis, based on site features (e.g. size, location, sensitive resources) and the type of recreation (e.g. trails, picnic areas, viewing areas, etc.). At their discretion, the permitting resource agencies will review the features of each proposed acquisition, including potential recreational use, for approval under this program.

CDFG-32

The District disagrees that the proposed mitigation (66 acres of giant reed removal) does not adequately compensate for the removal of 66 acres of riparian habitat due to the nature of the riparian vegetation being impacted by vegetation management. The vegetation being removed (very small saplings, most under 2 inches in diameter) does not have the habitat value associated with mature riparian vegetation. Refer to EIR page II-9, paragraph 5 and EIR page II-12, paragraph 2 for a discussion of types of vegetation being controlled. See response to comment FWS-02 regarding revegetation associated with giant reed control.

The District disagrees with the assertion that giant reed typically occurs in channels with limited habitat. Preliminary mapping has shown some of the largest infestations in Santa Clara County in Coyote Creek, Uvas Creek, and Alamitos Creek where it is intermingled with very rich riparian vegetation (SMP page 5-15 paragraph 2). Other creeks with giant reed show similar conditions.

CDFG-33

Comment noted. The District attempted to respond to all comments from the external stakeholder process which are feasible and consistent with the purposes of the project, or to consider them in the alternatives. The Final Environmental Impact Report (FEIR) concludes that impacts have been reduced for most impacts to a level of insignificance. For one impact (fragmentation of wildlife habitat), cumulative impacts could not be reduced below insignificance even with BMPs and mitigation, thus a Statement of Overriding Considerations will be prepared for any alternative selected which has significant effects.

CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
1801 East Cotati Avenue
Rohnert Park, California 94928-3609
Tel: 707.664.2494 • Fax: 707.664.3947
E-mail: nwic@sonoma.edu

May 1, 2001

File # 01-SC-35E

Ms. Cindy Roessler
Project Management Unit
Santa Clara Valley Water District
5750 Almaden Expwy.
San Jose, CA. 95118-3686

Re: Multi-Year Stream Maintenance Program (SMP)

Dear Ms. Roessler;

CHRIS -1

Due the high to moderate sensitivity of the 240 miles of streams and 29 miles of canals this office is recommending a project-by-project evaluation.

Thank you for including the Northwest Information Center in this review process and your continued concern for protecting our historical heritage.

Sincerely;
K. Thorne for
K. Thorne, for
Leigh Jordan, M.A.
Coordinator

Responses to Comments in California Historical Resources Information System Letter

CHRIS-01

As stated on page IV-E-12 of the EIR, most maintenance projects do not involve excavation of previously undisturbed material. A mitigation measure described in the EIR is incorporated as new BMP 7.2 *Review of Projects with Native Soil* in the revised BMP table.

May 14, 2001

Ms. Cindy Roessler, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

SUBJECT: Stream Maintenance Program – Draft Environmental Impact Report

Dear Ms. Roessler:

The Santa Clara County Parks & Recreation Department (Parks Department) is in receipt of the Draft Environmental Impact Report (DEIR) for the *Stream Maintenance Program.* We are focused on how the Stream Maintenance Program may potentially impact our recreational trails and parks within and adjacent to Santa Clara Valley Water District (SCVWD) lands. The subject program areas are located within the vicinity of our major park chains and trail corridors, including Coyote Creek, Llagas Creek, Guadalupe Creek, Los Gatos Creek, and Penitencia Creek, among many other creeks and streams. Overall, the Parks Department is pleased to see SCVWD continue its efforts in protecting our natural resources and environment with the implementation of Best Management Practices under the Stream Maintenance Program. Our comments are as follows: CP

Environmental Factors Potentially Affected

1. AESTHETICS

The Parks Department would like the EIR to address visual impacts to park and trail users in the vicinity of project locations designated for the Stream Maintenance Program. Such visual impacts within adjacent parklands or streamside trail corridors could include: extensive removal of vegetation, soil stockpiles, increased scour/erosion of stream banks downstream, temporary construction of stream access ramps and roads, use of hardscape bank protection techniques, use of temporary fill, use of non-native vegetation, etc. It would be most beneficial if the EIR identify specific creek and stream corridors targeted for maintenance with an overlay of the countywide trails network, in order to determine the level of potential aesthetic impacts on parks and trails. -1

2. LAND USE

It is not clear from the DEIR how much impact this program might have on park and trail users, particularly regarding the closure of trails and impacts on hiking, biking, and equestrian riding during routine stream maintenance. The EIR should address the impacts on park and trail users and the likelihood of trail closure. It would also be helpful to identify potential easement -2 agreements that would be needed with the Parks Department to permit vehicular entry of heavy construction equipment during program implementation.

As a result of successful interagency collaborations and joint use agreements with SCVWD. the Parks Department has been able to implement our countywide and regional trails located within recreational easements on SCVWD lands. Thus. the Parks Department appreciates the opportunity to respond to the DEIR for the Stream Maintenance Program and looks forward to reviewing the Final EIR when it becomes available. If you have any questions regarding the above noted comments, please contact me at (408) 358-3741 x192 or via EMAIL at kelly.gibson@mail.prk.co.santa-clara.ca.us.

Sincerely,

Kelly Gibson
PARK PLANNER

cc: Mark Frederick. Planning and Development Manager
Lisa Killough. Deputy Director, Parks Administration
EIR files

Responses to Comments in Santa Clara County Parks and Recreation Letter

CP-01

The EIR addresses visual impacts on pages IV-C-7-IV-C-9. BMPs that will reduce temporary impacts to park and trail users in the vicinity of maintenance projects are listed in these pages. A new figure has been added identifying the overlap of county trails and projected work areas (See Revised SMP Figures section).

CP-02

Maintenance activities rarely require closure of trails because the actual work is either not occurring on the trail and is limited to a few days. See new BMP 4.9, *Notify Park Departments of Trail Closures*, in the revised BMP table.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 14, 2001

Ms. Cindy Roessler, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Re: Santa Clara Valley Water District's (SCVWD) Draft Stream Maintenance Program (SMP) and Draft Environmental Impact Report (DEIR), dated March 2001

Dear Ms. Roessler:

Thank you for the opportunity to review and comment on the Santa Clara Valley Water District's DEIR and SMP, dated March 2001. Rebecca Tuden and Luisa Valiela of our office have been working closely with the SCVWD staff over the past few years to come to agreement on the components of the SMP. We congratulate the SCVWD staff on the progress to date in revising the SMP and believe that the pursuit of a long-term permit is in all of our interests. The proposed SMP will help standardize maintenance activities, streamline project review and permitting, and help minimize impacts to waters of the United States. We look forward to continuing to work with the SCVWD and the other agencies involved on a few areas of concern that remain unresolved. The following comments have been prepared under the authority of, and in accordance with the provisions of the Federal Guidelines (40 CFR 230) promulgated under the Section 404(b)(1) of the Clean Water Act (CWA).

PA OUTSTANDING ISSUES

1) **Compensatory Mitigation:** We agree with the one-time accounting of impacts. However, as mentioned in previous correspondence to the SCVWD and during the stakeholder meetings, we have a number of concerns with the proposed mitigation.

-1

- **Tidal Wetlands Impacts**– The SCVWD estimates impacts to tidal wetlands at 30 acres over the life of the permit (10 years) and is proposing a 1:1 mitigation ratio. We have agreed that the Cargill Pond A-4 is an appropriate mitigation site, but we are concerned that the temporal impacts associated with the proposed mitigation site are not factored into the mitigation ratio. Construction of the mitigation site Pond A-4 is not expected to begin until 2006, approximately 5 years after the impacts to wetlands are to occur as a result of the maintenance activities. We recommend a mitigation ratio of greater than 1:1 because there is temporal loss of wetlands, and because an adequate margin of safety should be built in for the period of time before the replacement wetlands are fully functioning. These future impacts needing mitigation are in addition to impacts from

-1 (Cont..) maintenance activities for 1996, 1997, 1998 and 1999. In addition, there are outstanding questions about the construction methodology for Pond A-4 and how this plan may be modified if other restoration efforts take place in the Cargill Ponds. Therefore, we strongly recommend that the SCVWD identify a tidal wetland mitigation site that is immediately available for wetland compensation. If that is not possible, then the mitigation ratio should be increased to greater than 1:1 to compensate for the temporal loss.

-2 • **Seasonal/Freshwater Wetlands Impacts**– The SMP estimates impacts to freshwater wetlands to be 14 acres over the life of the permit (10 years) and is proposing a 1:1 mitigation ratio. The wetlands that are to be impacted by maintenance activities are in-stream wetlands. The proposed mitigation sites are all off-stream wetlands that will not be constructed nor fully functioning for several years. This represents an out-of-kind replacement. In referring to the Guiding Principles for Mitigation (Table 5-2) it is not apparent why these proposed sites provide more benefit than in-kind restoration (Guiding Principle #8). We suggest modifying Guiding Principle #8 so that it recognizes that some out-of-kind mitigation might be necessary at an increased mitigation ratio. Also, we are concerned that the source of water for the proposed mitigation sites is artificial irrigation. Our national guidance on Mitigation Banking ("Federal Guidance for Establishment, Use, and Operation of Mitigation Banks", November 1995) recommends against artificially irrigated wetlands. Highly managed wetlands systems require higher operation and maintenance costs that should be factored into their cost-effectiveness as a mitigation option, and their susceptibility to invasions of non-native biota should also be factored into maintenance plans for the sites. For the reasons outlined above, we strongly recommend that the SCVWD identify an in-stream wetland mitigation site that is immediately available for wetland conservation or restoration. If that is not always possible, then we recommend a mitigation ratio of greater than 1:1 to compensate for the temporal loss, artificial irrigation, and out-of-kind replacement.

-3 • **Stream and Watershed Protection Program**-- We are supportive of this comprehensive approach which will target priority streams and watersheds in the SCVWD jurisdiction for acquisition and restoration of good quality watershed land. We continue to encourage the SCVWD to identify specific parcels that might be available for such a program, and recommend that the SCVWD work with the existing watershed planning efforts (Santa Clara Basin Watershed Management Initiative) to identify priority streams for protection and restoration.

2) **Bank Protection Activities:** Our main concern with the proposed SMP surrounds bank protection activities. Our concerns relate to the design criteria for bank protection, the proposed estimate of impacts, and the mitigation. The programmatic impact assessment only identifies fish impacts from bank protection activities, and not the cumulative loss of riparian and in-stream diversity and function. Thus, we believe that the proposed methodology does not accurately measure the impacts, and consequently the mitigation proposed is inadequate.

• **Design Criteria**– As discussed at the April 4, 2001 interagency meeting, we support

-4 identifying specific design criteria for each bank protection measures (Appendix E). We recommend they be expanded to specify the roughness criteria, soil conditions, constraints on the adjacent land use or floodplain, and include a specific height up the slope or "toe of slope" that would be subject to the bank protection. Other items such as "toe of slope" and exact type of hardscape (boulder size, etc) should also be defined for each bank protection measure. Once the design criteria are more fully described, we can review their adequacy and determine if permitting the activities under the SMP is appropriate.

-5 • **Estimation of Impacts**– We do not concur with the programmatic impact assessment for bank protection activities described in Exhibit C (February 14, 2001). While we support the concept of identifying functions of a particular reach or stream and assessing the change in function with a proposed project, the matrices presented in Exhibit C are not rigorous or prescriptive enough to determine the actual functioning of a reach or the estimated impacts. For example, the in-stream impact matrix was geared almost exclusively to fish habitat. Other in-stream functions should be included and assessed including biogeochemical (e.g. nutrient cycling) and hydrologic functions (e.g. sediment transport). The riparian functions also lack sufficient specificity in functions. Again, our concerns with the proposed inclusion of bank protection activities is the cumulative loss of riparian and in-stream diversity and function. We do not support the proposed methodology as an accurate accounting of the impacts.

-6 • **Mitigation**– The proposed mitigation is based on the methodology for estimating impacts (Exhibit C), discussed above. We do not support using the methodology for determining the adequacy of mitigation. Of particular concern is the proposal that certain bank protection activities can actually qualify for mitigation credit. It is our experience that the goals and constraints of bank protection methods are much different than the goals or constraints methods used for restoration or enhancement. We continue to recommend a minimum in-kind replacement ratio of 1:1 for bank protection.

-7 3) **Herbicides:** EPA has some concerns regarding the water quality impacts that the use of herbicides for vegetation management can have. We defer to the Regional Water Quality Control Boards' determination on the suitability of expanding the SCVWD's herbicide program, and support the RWQCB's request for further information on appropriate BMP's for herbicide use in the winter when wet-weather conditions may increase the likelihood of water quality impacts.

-8 4) **Mercury:** We have concerns about the potential for mercury releases as a result of sediment removal activities, as well as the potential for methyl-mercury creation from wetlands restoration at the Los Capitancillos site. Existing data show mercury to be present primarily in the Guadalupe River watershed of the Santa Clara Basin; the SMP should provide the specific sites/stream reaches to undergo stream maintenance activity that will need to address mercury.

• **Mercury and Sediment Removal Activities**-- We strongly recommend fully characterizing the sediments to be dredged and disturbed in watersheds known to have

-8 (Cont.) mercury contamination. Again, previous documentation for capital projects on the Guadalupe River (DSEIS/EIR for the Downtown Guadalupe Project, July 26) show it to be the watershed of most concern regarding mercury. It is important that stream maintenance activities incorporate the Best Management Practices that will prevent any mercury releases that could have water quality impacts.

-9 • **Mercury and Los Capitancillos**– We are concerned about the mitigation site proposal for Los Capitancillos given the levels of mercury found in the soils there. Because of the methylization of mercury that can occur in wetlands, making the mercury more bioavailable to fish and wildlife, it is important to be sure that soils introduced into a wetlands system do not have mercury in amounts that would threaten fish and wildlife. If soils containing mercury need to be removed from the site for wetlands creation, as proposed on page 5-7, we recommend further agency consultation to determine appropriate core sampling methods, depths, and analyses. As well, replacement soils will not only need to be clean of pollutants but also be able to support the appropriate assemblage of freshwater wetlands plants.

-10 5) **Standards for Removal of Sediment (SMP, pages 2-1- 2-3):** The SMP describes some of the causes of sedimentation in the Santa Clara Basin (pages 4-6- 4-8) but does not describe any intent to document areas that are particularly subject to sediment accumulation or identify areas undergoing severe erosion. We would like the SCVWD to consider implementing a clear decision-making process to determine the need for sediment removal work, for instance an objective standard that channels are subject to sediment removal once a certain percentage of flood capacity has been reached. A better understanding of sediment transport in the streams under SCVWD jurisdiction could lead to a more effective stream maintenance program that could have less of an impact on in-stream functions and habitat.

ITEMS REQUIRING MORE CLARIFICATION

-11 6) **Minor Maintenance Activities (SMP, page 2-17):** It appears that many of the proposed activities would not be regulated under Section 404 of the CWA. However, there is insufficient detail, in the SMP to determine exactly what the proposed activities are and whether they would impact waters of the U.S. and wetlands.

-12 7) **Monitoring and Reporting(SMP, page 3-4- 3-5):** The monitoring and reporting system should distinguish between work previously done in an area from proposed "new"work. The work in an area that was already impacted and mitigated – will not need any additional mitigation. This should be reported separately from "new work". The monitoring and reporting should also identify where the mitigation area is – this area should be clearly identified on a map, and a protection or conservation easement should be placed on that area to preclude future impacts. At recent interagency meetings (April 4, 2001, and April 30, 2001), we discussed the need for extensive monitoring and reporting at the onset of the program. We anticipate that over time, as the program becomes more routine, the monitoring requirements are likely to lessen. Initially, however, we want rigorous reporting. We will be willing to work with your staff and other regulatory agencies to develop the details of this monitoring effort.

EPA

-13 8) **Control of *Arundo donax* (SMP, page 5-14):** Please clarify if the removal of *Arundo donax* is mitigation for impacts from in-stream vegetation removal or for impacts to riparian vegetation, or both. The CWA 404 program does not regulate vegetation removal in riparian areas unless it is as a result of herbicide treatments; if the "..78 acres of impacts to riparian vegetation..." being mitigated for is because of an herbicide application, then the mitigation is appropriate: if not, then the mitigation is being misapplied under the 404 program.

Thank you for the opportunity to review the draft SMP and its DEIR, and if you have any questions, please call Luisa Valiela of my staff at (415) 744-1991.

Sincerely,

Tim Vendlinski, Chief
Wetlands Regulatory Office

cc: Molly Martindale, USCOE (San Francisco)
Dale Bowyer, RWQCB (Oakland)
Maura Eagan, NMFS (Santa Rosa)
Mark Littlefield, USFWS (Sacramento)
Margaret Roper, CDFG (Yountville)

Responses to Comments in US Environmental Protection Agency Letter

EPA-01

The District recognizes the importance of coordinating the Pond A4 Restoration Project with the proposed regional restoration of Cargill's south San Francisco Bay salt ponds. As a result, the District initiated a dialogue approximately two years ago with the multi-agency task force that convened to plan the regional acquisition and restoration. Because of the uncertainties regarding the funding for the acquisition and the projected time-frame for implementing such a large scale restoration if it were funded, it was mutually agreed that the District should proceed with the planning and implementation of the Pond A4 project. We are committed to continuing to ensure that the Pond A4 project is planned in coordination with the regional restoration planning effort to maximum extent possible. It is likely that any tidal wetland mitigation site that would be identified as providing appropriate compensation for the Program would be affected by the proposed large scale salt pond restoration.

Regarding the recommendation to identify a tidal wetland mitigation site that is immediately available for wetland compensation, the District is not aware of a site that would provide in-kind and within watershed mitigation any sooner than the Pond A4 site. In April 2000, the District purchased fee title for Pond A4 and made the commitment at that time to provide compensatory mitigation for the Multi-Year Stream Maintenance Program at that location.

See response to EPA-02 regarding reasons why the District finds the amount of permanent mitigation offered in the SMP to be adequate for temporary but repetitive maintenance effects.

EPA -02

Note that impacts to freshwater wetlands are projected to be 106 acres (see revised table IV-B-7 in the list of revisions to EIR). A combination of 14 acres of freshwater wetland creation and 820 to 1,080 acres of land acquisition plus stream restoration and management under the Stream and Watershed Protection project are proposed to address these impacts (see revised Table II-7 in the list of revisions to EIR).

The District does not consider the traditional approach of 1:1 or 3:1 mitigation ratios as appropriate for this project. These types of ratios are usually applied when impacts are permanent. Stream maintenance impacts are temporary but repetitive. The level of mitigation offered is linked to the SMP's one time approach to determination of impact amounts (EIR, page IV-V-62). Among the considerations that directly affect the determination of mitigation level for freshwater and tidal wetlands are that impacts do not occur all at once, but are spread over several years; in the interim between maintenance activities, wetlands rapidly re-establish; maintenance impacts are temporary in that there is habitat re-establishment and no permanent loss of the site's ability to support wetland; the wetlands affected have been routinely disturbed or many years and do not represent pristine conditions: and permanent migration with wetlands which will not be periodically disturbed is provided for temporary impacts. In addition to these considerations, 59 acres in excess of projected total stream vegetation impact acreage is included in the Giant Reed Control Program to address the potential time lag in program mitigation implementation.

Freshwater wetland creation projects are located adjacent to streams, but not within streams. This approach was taken because it was first recognized that there were serious constraints to creating new in-stream wetlands, and then determined that good wetland habitat could be created out of, but adjacent to streams. In-stream areas that could support wetlands would be subject to the same disturbance that has created the need for mitigation under the SMP, and thus was not deemed a feasible alternative (**see response to** LL-17). The off-stream wetlands provide some added benefit by having the ability to be disturbed less frequently than in-stream wetlands by both natural and human causes, and, by potentially providing more diverse and complex wetland habitats. Being located next to streams, the creation sites add to the overall mosaic of habitat types associated with the stream landscape.

More naturally functioning, less managed hydrology for the created wetlands is the preference of the EPA, and is also the preference of the District. The available sites for wetland creation identified to date, however, do not provide for this approach (see SMP page 5-5). The District recognizes that higher operation and management costs are associated with these types of systems, but in order to provide some increment of new wetland habitat, has no reasonable alternative. It should be noted that the District is uniquely experienced and qualified in the successful long term operation and maintenance of artificially irrigated systems, including our numerous percolation facilities.

The management required to operate the created wetlands should not make them any more susceptible to invasion by non-native biota than other local wetlands. The ability to avoid or control colonization may be increased by the ability to manage the hydrological regime to avoid preferred habitat conditions of unwanted species, such as bullfrogs. However management of unwanted species in Santa Clara County is a continuing concern. The potential for colonization of sites by non-native biota will be addressed in project design, site management and maintenance.

EPA-03

The Stream and Watershed Protection Mitigation program will be implemented over 10 years based on the approach and schedule offered in the MMRP in Chapter 5 of the SMP. Acquisition will be completed, and restoration and management projects will be identified in order to meet the interim milestones. The milestones are: 25% of the mitigation credit addressed by completed acquisition and/or identification of restoration or management projects by year 3, 50% by year 6, and all by year 10.

Regional considerations, including identification of projects on streams and watersheds that provide high environmental benefit, is part of the priority evaluation process for project selection (see MMRP). This will include coordination with other regional programs such as Watershed Management Initiative (WMI), to help identify priority streams and resources. Currently, the WMI is in the watershed assessment phase for 3 target watersheds in the Santa Clara basin, and does not have information pertaining to identification of target streams. However, we will continue to track this and other regional efforts, such as the FAHCE (Fisheries and Aquatic Habitat Collaborative Effort), and coordinate with those efforts as they progress.

EPA-04

Some of the information you have requested is shown in the individual descriptions and sketches such as height of toe protection, slope requirements and type of toe protection in Revised Appendix E of the SMP. We have identified velocities and side slopes that are appropriate for the various repair methods and intend to refine these as further studies are completed since generalized values such as these tend to be conservative in order to be safe to use in all circumstances.

Other factors are not only site specific, but are very broad and must be considered holistically to prepare a design. For example, roughness of the channel as measured by Manning's roughness coefficient not only varies with the bank material, it varies with type of vegetation, as well as with depth. For example, on Oak Creek, Oregon, the roughness factor varies from 0.025 to 0.2 with discharge (proportional to depth) which is a factor of 800% in this particular case. The variation with depth makes it unfeasible to assign an n value to each type of erosion repair method.

There is a huge body of literature on erosion repair. It is outside the scope of this document to try to make our reader into an expert. We have, however, added several excellent references on erosion work in the EIR, VII D for those interested in further detail: (Rosgen, Dave, Applied River Morphology, 1996; U.S. Army Corps of Engineers, Bioengineering for Streambank Erosion Control, 1997; International Erosion Control Association, Design Procedures for Channel Protection and Streambank Stabilization, 1996; International Erosion Control Association, Biotechnical Erosion Control for Slopes and Stream Banks, 1996.

To address concerns expressed during the stakeholder process regarding hardscape in sensitive areas, bank protection that features methods that tend to eliminate biotic potential (such as concrete or sac concrete) in high quality aquatic, semi-aquatic and riparian areas were eliminated from this program and will be handled under individual CEQA reviews, permits and regulatory clearances as needed.

EPA-05

See the revised table in revised Appendix E of the SMP which shows the relationship between in-stream and stream-side values. These values, which are described in pages IV-B-73 and 74 of the EIR, have been added to the matrix and include sediment stabilization, water temperature moderation, and coarse particulate organic matter. This evaluation is intended to assess bank protection impacts to fish and wildlife habitat values and is not intended to assess other hydrologic functions, such as sediment transport.

The EIR acknowledges the cumulative loss of riparian and in-stream values that are referred to by the comment. The District has revised its bank protection program to further reduce potential impacts from hardscape designs and to include additional mitigation. Please also see revised Appendix E of the SMP, the Bank Protection Project Planning and Selection Flowchart, which identifies the process for planning and methodology selection.

EPA-06

See response to CDFG-06.

EPA-07

See responses to comments RWQ-SF 7,8, 9, and 10.

EPA-08

See response to RWQ-SF-29, discussion beginning on page 4-17 of the SMP on hazardous material management and control, and BMP 1.10, *Avoid Exposing Soils with High Mercury Levels.* Currently, sediment removal and bank protection in all streams in the Guadalupe River Watershed except Los Gatos Creek and tributaries will need to address mercury.

EPA-09

Comment is noted. Refer to the District's web site, www.heynoah.com, for updates on the Los Capitancillos freshwater (or nontidal) wetland project. Consultation with regulatory agencies will occur at several of the project steps.

EPA-10

The areas subject to sedimentation have been documented in a database with details of historic sediment removal work since 1977. The database includes information on the reaches of streams where work occurred, the volume of sediment removed, the duration of each project, and the specific length of reach. Project work orders have been filed and contain specific information on the types of labor and equipment used to complete the work. See page 4-3 and Appendix B of the SMP for a discussion of the development and use of maintenance guidelines to evaluate the need for sediment removal.

EPA-11

The commenter is correct that most of the minor channel maintenance activities would not be regulated under Section 404 of the Clean Water Act. Minor activities that do constitute fill in waters of the U. S. or do not have an impact on wetlands include repair of structures with in-kind materials within the same footprint (such as replacement of concrete linings, culverts, pipes, valves, or similar structures) and cleaning and minor sediment removal at stream gages, outfalls, culverts, flap gates, tide gates, inlets, grade control structures, or fish ladders. These activities typically have minimal impact on water quality and wetlands or riparian habitat when appropriate best management practices are applied. Refer to page II-21 of the EIR for a list of minor work activities. See the following BMPs for conditions on minor work activities: 1.1; 1.7; 1.9; 1.11; 2.13; 3.15, and 6.1.

See also response to comment SFT-30.

EPA-12

On page II-28, the EIR incorporates the annual reporting described as part of the SMP. In response to this comment, the annual reporting is revised in the second paragraph of page 3-5 of the SMP:

> A final annual report detailing what work was accomplished will be submitted to the District's Chief Executive Officer, United States Army Core of Engineers (USACE), United States Army Core

of Engineers (USACE), California Department of Fish and Game (CDFG), Bay Conservation and Development Commission (BCDC), National Marine Fisheries Service (NMFS), the San Francisquito Joint Powers Authority and RWQCB at the end of the maintenance season (prior to January 1) which will specify which projects were completed for the year including type of work, location, and size of the project. Sediment removal, vegetation management, and bank protection work which has been repeated under the SMP will be distinguished from areas where such work is being undertaken for the first time under the SMP. Any modifications of BMPs recommended at the annual lessons learned meeting will be summarized in the annual report.

In addition to reporting on the maintenance activity completed for the year, the District will also provide reporting on the implementation of the mitigation program, including maps showing the location of compensatory mitigation sites, a description of the current stage in the planning and implementation schedule, progress towards success criteria, and a general summary of maintenance of mitigation sites. For the first 5 years of the program, the District will provide the agencies with a tour of representative work areas (especially those along target streams and watersheds) for that year and all mitigation sites. This tour will take place after completion of the work season. Preconstruction photographs will also be provided.

On page II-24, the EIR incorporates the compensatory mitigation program included in the SMP. In response to this comment, the compensatory mitigation program in the SMP is revised to add the following paragraph to page 5-2:

> All sites for mitigation will either be held in ownership or easement by the District or another cooperating public agency or private conservation organization, or have a conservation easement held by one of these agencies.

The MMRP added to the SMP provides a level of monitoring and reporting sufficient for the purposes of CEQA to ensure that mitigation measures are successfully implemented. District staff will continue to negotiate with agency staff if additional monitoring and reporting is sufficient for permits.

EPA-13

As presented in revised Table II-7, 66 acres of control of giant reed is proposed as mitigation for riparian impacts from vegetation management activities. These vegetation management activities consist of removing woody saplings from the channel bottom, primarily by herbicide treatment, but sometimes by hand or mechanical methods. See pages II-9 and II-12 of the EIR for a description of these methods. The District believes that vegetation management activities of this type are not regulated by the Clean Water Act because they do not result in placement of fill or discharge of dredged materials.

Friends of the Guadalupe
"The Silicon Valley Chapter of Urban Creeks Council"
1228 Harriet Avenue Campbell, CA 95008
(408) 374-0556 Phone - (408) 378-1583 Fax

May 13, 2001

Ms. Cindy Roessler
Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Subject: Draft EIR and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program

Dear Ms. Roessler;

FOG -1

Friends of the Guadalupe, The Silicon Valley Chapter of the Urban Creeks Council, does not support the SCVWD's Stream Maintenance Program for Multi-Year Stream Maintenance. The Draft EIR recommends continuing the same destructive practices of past years, which will be extremely damaging to the environment, especially special status species.

FOG -2

As stated in the first Paragraph of page IV-A-22 under Geomorphology, the Water District states that, "**many of the channels that the District maintains have been significantly altered and the equilibrium status of the channel is deliberately kept permanently out of balance to maximize flood water conveyance capacity.**" If this philosophy is allowed to continue, we believe loss of our natural resources as we now know them will be the end result.

Improperly modified channels always produce a multitude of sediment and habitat problems. We disagree thatthe effects of the program can be mitigated to insignificance. Under Alternatives, the EIR also states, "**there is no way to reduce the need for ongoing maintenance as much of the sediment is beyond the District's control.**" How is this possible when it was stated that the equilibrium status of the channel is deliberately kept permanently out of balance by the Water District? Streams maintain themselves if they are in a state of equilibrium, however if they are out of balance, they will try to adjust to one of balance which continues the cycle of sediment, maintenance and habitat problems.

FOG -3

Sections of the Report indicate it will run for 10 years, other sections state it will run for 20 years, and in other cases it states the plan will be implemented indefinitely. We object to this "carte- blanch" feature.

FOG -4

Further, the EIR shows two tables with fish habitats. The information in these tables are inaccurate. Table IV-B-3 lists steelhead as regularly present in Guadalupe, Alamitos, and Calero

FOG -4 (cont..)

Creeks. there have been impassable dams and to our knowledge, they have never been observed in these streams in recent times. High flows could have possibly brought steelhead to Guadalupe Creek at times, but not on a regular basis. Chinook salmon have been listed as being present in Potential Trout streams such as Guadalupe and Alimitos Creeks. These species have never used these creeks in recent times as they didn't have access to them. The table does not show steelhead occupying Mixed Spawning Habitat when they are known to occupy this area. These tables need correction.

FOG -5

The EIR states that Chinook salmon are "likely strays from Central Valley stocks." It also states that the species does not occur in earlier historical records for the region. There are historical records that date to the founding of the Missions concerning salmon, and residents and fishermen reported catching Chinook salmon in area waterways from the late 1800's. Unique genetic markers have been found in some Guadalupe River salmon samples that have not been found in Central Valley fish, see (Federal Register 1999: Nielsen 1995; Neilsen et al. 1999). The EIR needs to be corrected concerning these issues.

Sincerely,

Nancy Bernardi

Nancy Bernardi

Responses to Comments in Friends of Guadalupe Letter

FOG- 01

Comment acknowledged.

FOG-02

Comment acknowledged. Please refer to master response regarding geomorphology. Note that with the present urban encroachment on the floodplain, a "geomorphically stable" channel would not be capable of conveying high flood flows. During a flood event, there would likely be substantial changes in the channel and possible surrounding property damage. The District is obligated to maintain the flood conveyance capacity of modified channels even though the modification and the subsequent maintenance prevents sedimentation from reaching the "stable" steady state. With the exception of the cumulative impact of fragmentation of wildlife halibut, the EIR demonstrates that the impacts of the SMP will be mitigated to a less-than-significant level.

FOG-03

The last paragraph of page II-29 and the first paragraph of page II-30 of the EIR state that the SMP is an indefinite ongoing program, however, the EIR uses a 20-year planning time frame and initial permits will be issued for 10 years.

FOG-04

Guadalupe, Alamitos, and Calero Creeks have supported resident rainbow trout, but are now accessible to steelhead with the laddering of the Blossom Hill Drop Structure in November 1999. Adult steelhead and steelhead smolts were captured in Almaden Lake, upstream of the drop, in spring 2000. Steelhead are likely to gradually replace resident rainbow trout in Guadalupe, Alamitos, and Calero Creeks, and all habitats downstream of the creeks should be treated as at least steelhead migration routes for assessment of impacts and mitigation needs. Chinook salmon have been observed ascending the ladder and in portions of Guadalupe Creek and are likely to use Alamitos and Guadalupe Creeks for spawning.

The downstream transition in several streams (Guadalupe River, Los Gatos, and Coyote Creeks) from Potential Trout (5) to Mixed Spawning (3) is based upon summer stream flow declines and/or water temperature increases downstream. The generally low summer streamflows and high water temperatures in Mixed Spawning Habitat are sufficient to prevent significant juvenile steelhead use in most years. Chinook salmon are able to use such stream reaches because salmon smolts outmigrate in spring prior to substantial water temperature increases.

FOG-05

This issue is discussed on page IV-B-43 of the EIR. There are no historical records by biologists or museum records for chinook salmon in the south bay, as indicated in Leidy (1984). Snyder (1908), who was at Stanford University, did not record chinook salmon from south bay streams based upon his 1905 sampling. The National Marine Fisheries Service did not include South San Francisco Bay tributaries in the Fall Run Chinook Salmon ESU for the proposed (and rejected) listing. Although there may be anecdotal accounts for early salmon and for occasional salmon in this century, it is likely the recent significant (1980's+) runs are due to straying of Central Valley stocks, especially due to water manipulations and physical transport of smolts around barriers. As indicated in the text, some production is now occurring within Guadalupe River and Coyote Creek; smolts have been captured by District trapping. Nielsen's (1995) genetic study attributed many of the 1994 Guadalupe River samples to Central Valley stocks, but could not match others, probably because of a limited data set for Central Valley stocks at that time. Additional genetics work in the Central Valley now provides a larger reference for possible sources, and a recently funded study conducted by Bodega Marine Laboratory of several hundred District samples is underway.

As a result, the EIR reasons that hatchery production and management practices in Central Valley production facilities have resulted in production of large numbers of juvenile chinook salmon with poorly developed homing instincts. Specific management practices that lead to straying have included transfer of eggs and fry between river systems and release of fish in downstream areas of the Delta and Bays rather than in natal river reaches. Straying of chinook salmon to river systems other than the natal stream has been widely documented in tagging studies conducted by the California Department of Fish and Game and U.S. Fish and Wildlife Service. Widespread adoption of such practices is contemporary with observations of migrating adult salmon in the Coyote and Guadalupe Rivers since the mid-1980's.

The statements in the EIR are consistent with recent NMFS determinations based on extensive deliberation and findings of teams of scientists from federal, state and local fisheries resource agencies, Indian tribes, industries, universities, professional societies, and public interest groups with technical expertise relevant to chinook salmon and their habitats. The NMFS also relied on genetic information from several studies including those cited by the commenter (Nielsen 1995; Nielsen et al. 1999). The NMFS concluded that: "Although the historical relationship between chinook salmon spawning in San Francisco Bay tributaries and the coastal and Central Valley ESUs is not known, present day adults may have originated from the numerous off-site releases of Central Valley hatchery fall-run chinook salmon into the Delta and San Francisco Bay. Additional information on genetic and life history traits for San Francisco Bay chinook salmon and their relationships with Central Valley and coastal chinook salmon populations is necessary to resolve this issue." (Federal Register Vol. 64, No. 179, September 16, 1999, Threatened status for two chinook salmon ESUs in California, Final Rule).

MARCH 3, 1849

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

IN REPLY REFER TO
PPN 2866

May 9, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118-3686

Dear Ms. Roessler:

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR)for the Santa Clara Valley Water District (District) Stream Maintenance Program, and a copy of the Draft Stream Maintenance Program Document (DSMP). The U. S. Fish and Wildlife Service (Service) views the DEIR as an excellent assessment of the impacts of your stream maintenance program.

WS

-1

Of the alternatives considered, the Service recommends that the Reduced Work Alternative be utilized, as it eliminates the use of hardscape designs in the bank protection program. Your assessment that hardscape bank protection limits biotic potential was a well-written description of the impacts associated with such techniques. With sediment removal and vegetation management no longer occurring in unmodified channels under this alternative, we recommend that the District perform exotic vegetation control in these areas to reduce the spread of exotics. Aside from this point, we do agree that this is the environmentally superior alternative.

There are several points within the DEIR that we would like clarification and/or to comment on:

-2

1. Page S-3 states that control of giant reed (*Arundo donax*) is proposed to compensate for impacts from vegetation management in streams to 78 acres of riparian vegetation. We cannot comment significantly until a protocol is developed to guide where and how initial or subsequent revegetation is undertaken. Natural recolonization of areas treated for giant reed may not be significant enough to be considered adequate compensation. Control of giant reed may also benefit the District in reducing flooding potential.

-3

2. Page S-6 states that "Placement of additional hardscape within stretches of vegetated channels may also contribute to significant cumulative impacts in some watersheds over the years." The Service believes that placement of additional hardscape within stretches of unvegetated channels may also contribute to significant cumulative impacts to some watersheds over the years.

FWS

-4 3. Page II-3 mentions that a total of 306 miles of streams are unclassified and presumed to be a natural channel type. The Service recommends that the DEIR disclose the methods utilized to reach this assumption.

-5 4. Page II-26. Table II-8. Does this table only consider impacts to sport fish, or other organisms? Based on a review of scientific literature and the Service's experience, some bank protection measures limit the biotic potential for a host of other organisms.

-6 5. Page II-28, Environmental Baseline: The baseline should also consider the potential of an area to progress toward a higher successional vegetative state. Increased hardscapes and the continuation of a program that limits vegetative succession is a significant impact.

-7 6. Page II-32 describes the District's Community Projects Review Unit, and how they review stream related permits. Does the District require permit applicants to pretreat their stormwater runoff before it enters the stream? Is there a long-term storm water management plan? If not, the Service recommends that programs to pretreat storm water be developed, along with a long-term management plan.

-8 7. Page IV-B-28 fails to mention the consultation requirements with the National Marine Fisheries Service for anadromous fish under section 7 of the Endangered Species Act.

-9 8. Page IV-B-58 identifies the proposed tidal restoration component of the compensatory mitigation package, but fails to describe how the restoration would be compatible with the proposed Lower Guadalupe River Flood Protection Project.

-10 9. Page IV-B-67, In-stream Riparian Vegetation: This section should also consider the potential of an area to progress toward a higher successional vegetative state. The Service believes the continuation of a program that limits successional vegetative states is a significant impact. Even if all the treated giant reed sites were revegetated, there would be a lag time before these sites exhibited functions comparable with natural reaches of stream corridor.

-11 10. Page IV-B-70, We agree that fragmentation of wildlife habitat will result in local extirpations of wildlife species, and that these are significant even with the proposed mitigation.

-12 11. Page IV-B-74, Item 3 should include tree roots as potential escape cover.

-13 12. Page IV-B-74 lists mitigation for the loss of stream-side vegetation through bank protection projects. This list should also include BMP 2.5 (planting) whenever possible on site, as part of the mitigation proposal.

-14 13. Page IV-B-76, We agree that the effects of resuming herbicide spraying on 56 miles of stream in the Pajaro River Basin would reduce shade, cover, foraging and nesting habitat, and could fragment wildlife corridors. We also believe that BMP 2.5 should also be incorporated in the area to reduce these effects. Within the biodiversity monitoring program (BMP 3.19) we recommend that the in-stream thermal effects of the herbicide program be measured and monitored.

-15 14. Page IV-B-79 should also include BMP 2.5 (planting) to mitigate for this action.

-16 15. Page IV-B-80 mentions the possibility of woody debris retention (BMP 3.9). Retention should also include the possibility of anchoring woody debris in place as a way to avoid transport to a less desirable stream location.

16. Page V-2, Item 2, Maintenance Baseline. Please see comment # 5 above.

There are also several points within the DSMP that we would like clarification and/or to comment on:

-17 1. Page 1-5, Item 3, Bank Protection, # 4, mentions beneficial uses of surface water. This should be defined. Fish and wildlife habitat should be included as a beneficial use.

-18 2. Page 5-15, Describes that credit for restoration and management would be generated on a dollar value basis, equaling one acre of mitigation credit for each $15,000 of projects funded. The Service would like to discuss this concept with you further. Credit for restoration must be evaluated in terms of the value of habitat impacted against the value of habitat restored or preserved.

-19 3. Page 5-23 includes Table 5-3, which states that riparian species would not be replaced if rock riprap were used as a bank protection measure. The Service recommends that riparian plantings be incorporated within a rock riprap bank protection project to promote riparian habitat benefits, or plant an equal length of degraded stream-side habitat nearby.

Future consultation with the Service will be required under the provisions of the Fish and Wildlife Coordination Act and the Endangered Species Act since project activities are anticipated to affect federally listed endangered species and impact jurisdictional wetlands.

Thank you for providing the Service with the opportunity to comment on the DEIR and DSMP. If you have any questions regarding these comments, please contact Mark Littlefield, Chief, Wetlands Branch at (916) 414-6580.

Sincerely,

Dale A. Pierce

Dale A. Pierce
Acting Field Supervisor

Enclosures

cc: ARD (ES), Portland, OR
SFWO, ESD (Cecilia Brown), Sacramento, CA
SFWO, Corps Branch (Rich DeHaven), Sacramento, CA
Reg. Mgr., CDFG, Region 3, Yountville, CA
(w/o enclosures)

5/16/01 (Wed) – 11:31 a.m.
FAXED TO: Tom Reid
TRA

Responses to Comments in US Fish and Wildlife Service Letter

FWS-01

Comment noted regarding Reduced Work Alternative. To clarify the work activities under this alternative, the following sentence is added to the third paragraph of page V-12 of the EIR:

> Control of invasive non-native plants could be undertaken in unmodified channels under the Reduced Work Alternative.

FWS-02

Guidelines for assessing whether individual giant reed control sites require revegetation are provided in the MMRP. In general, control sites will be monitored to determine if 40% of native cover will develop within 3 years after control begins. If native cover is not developing within this timeframe and the site conditions indicate that vegetation, as opposed to open water or gravel bars, would have occurred at the location prior to colonization by giant reed, active revegetation of the site will be undertaken. The District concurs that control of giant reed may benefit the District in reducing flood potential in some locations (SMP page 5-15 paragraph 1).

FWS-03

In the Summary Chapter, the District has highlighted the potentially significant cumulative effect of hardscape in vegetated channels. Appendix E of the SMP evaluates other effects of hardscape, some of which might occur in unvegetated channels, but these are considered less impacting than the exclusion of vegetation from vegetated channels, and therefore are not specifically highlighted in the summary chapter.

FWS-04

The existing channel conditions as listed on Table II-2 of the EIR were taken directly from the District's Waterways Management Model (WWMM). The WWMM is a comprehensive database that was started 20 years ago and contains information on channel conditions within the District. In 1997, this database was incorporated into the District's GIS. Less detail is known for stream reaches which have not been designed as flood control facilities. These unclassified channels are presumed to be in relatively natural condition because they have not been designed as flood control facilities.

FWS-05

The District agrees that certain bank protection measures, such as concrete, can limit biotic potential for many organisms in addition to native fish species as discussed in the last full paragraph in page IV-B-71 of the EIR. See the revised Appendix E of the SMP which includes a revised matrix to evaluate impacts from bank protection; it is not limited to sport fish.

FWS-06

The environmental baseline of the bank protection sites are urban surroundings with structures alongside the bank which prevent ecological trends such as succession to a higher vegetative state from developing o their full extent. Usually the bank erosion will be interrupted by such structures and resettling of the bank or remeandering of the channel with subsequent development of a classic gallery riparian forest will occur in this urban context. However, the District concurs that increased hardscape is a significant impact by limiting the amount of vegetation which might reestablish along the remaining bank.

FWS-07

Although the District reviews permit applications and land development under CEQA for pollutants, the District does not usually require permit applicants to pretreat their stormwater runoff as part of its permit review. These types of activities are regulated by the cities or county during their land use review and permitting, and by the Regional Water Quality Control Board. For its own activities, the District has developed its own storm water management plan through the Urban Runoff Management Plan described on page III-13 of the EIR. Under the SMP, the District will continue to test and quantify the amount of pollutants which sediment removal maintenance activities are removing from streams of Santa Clara County.

FWS-08

NMFS has regulatory authority over marine species under the federal Endangered Species Act, while the USFWS has responsibility for terrestrial plants and animals. The third paragraph on page IV-B-28 of the EIR is revised as follows:

> Pursuant to the ESA, the USFWS and NMFS have regulatory authority over projects that may affect the continued existence of federally-listed species. Because the SMP would require an U.S. Army Corps of Engineers (USACE) Section 404 permit for wetland fill and take of federally-listed species could result, an interagency consultation between USACE and both USFWS and NMFS under Section 7 of the ESA would be required.

FWS-09

The SMP project team has been coordinating with the Lower Guadalupe River project team to ensure that the projects are compatible and complementary to each other. The current proposal of Lower Guadalupe River will not impact the tidal wetland restoration component and the Guadalupe River Slough.

FWS-10

Regarding giant reed control, the EIR proposes 125 acres of giant reed control, including mapping, revegetation, education, and coordination, as mitigation for impacts to 66 acres of riparian vegetation. Of the total 125 acres, 59 acres are specifically designated for mitigating for lag time in the mitigation program.

It is important to note that just as there is a lag time in mitigation site restoration, the impacts from the SMP are themselves spread out over many years. See revised table II-7 in the list of revisions to the EIR.

FWS-11

The District concurs. See also response to comment AU-04.

FWS-12

Tree roots are included in item 1, page IV-B-73 and in Appendix E of the SMP regarding bank protection, as in-stream escape cover below the water surface.

FWS-13

The District concurs. Page IV-B-74 of the EIR is modified as follows:

2.1	Minimize vegetation removal
2.3	Minimize Hardscape in Bank Protection Design
2.5	Planting
3.5	Minimize Loss of Aquatic Habitat from Bank Protection work
3.14	Maintain or Provide Escape Cover

FWS-14

See master response regarding alternatives which revises the preferred alternative to limit herbicides use in the Pajaro River Basin and therefore reduce significant effects which would have otherwise been caused by resuming herbicide spraying in channels of the Pajaro River Basin.

FWS-15

Comment noted. The impact described on page IV-B-79 of the EIR is the potential for the direct loss of active bird nests, eggs, or young. The District believes that the listed BMPs are adequate to reduce this potential impact to a less-than-significant level, in particular, BMP 3.2, *Minimize Impacts to Nesting Birds Via Site Assessments and Avoidance Measures,* regarding methods to avoid nesting season and check for nesting birds prior to start of work.

FWS-16

Anchoring is one technique which could be used under BMP 3.9 *Retain Woody Materials and Vegetation* to retain woody materials. The District will use the California Department of Fish and Game Salmonid Stream Habitat Restoration Manual as a guide to determine methods to retain woody materials which will not increase flooding or erosion problems.

FWS-17

Reference to Chapter 2, Beneficial Uses, California Regional Water Quality Control Board, San Francisco Bay Region, Water Quality Control Plan is added to item 3.(4) on page 1-5 of the SMP.

FWS-18

Correction to comment: One acre of mitigation credit will be generated for each $150,000 (not $15,000) funded. This is the approximate per acre cost of several other District riparian mitigation projects recently implemented in the lower watershed (see SMP page 5-14 and response to MP-04). Many beneficial actions are difficult to quantify on a per acre basis, and this accounting method provides a programmatic approach to help ensure substantial benefit is generated while allowing for implementation of a wide variety of actions appropriate to variable needs. Examples of potential projects whose benefits are difficult to determine on an acreage comparison basis includes installation of erosion control features on stream-side or nearby watershed roads to reduce sediment input, retrofitting or installation of energy dissipation devices on culverts to reduce erosion and sedimentation, removal of in-stream barriers, provision of alternative water sources or fencing to reduce livestock or exotic wildlife trampling of sensitive stream reaches (see MMRP pages 5-13 and 5-14 of SMP).

Each individual proposed project will also be subject to review by the relevant SMP permitting agencies prior to final approval under the program. Those projects which are deemed to provide adequate value would be implemented. An approach to further streamline the review and approval process will be explored collectively with the SMP permitting agencies, with less prior oversight expected as program implementation progresses.

FWS-19

The Table 5-3 is simply a list of concepts agreed to between regulatory agencies and District staff in the stakeholder meetings. The District has now included mitigation for new impervious bank protection and for rock. See response to comment CDFG-06.

JPA

SAN FRANCISQUITO CREEK
JOINT POWERS AUTHORITY
EAST PALO ALTO, MENLO PARK PALO ALTO SAN MATEO FLOOD CONTROL DISTRICT SANTA CLARA VALLEY WATER DISTRICT

May 22, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

RE: Comments on Draft EIR for the Stream Maintenance Program

Ms. Roessler,

-1 Thank you for an extension of the comment period so that the JPA could review the DEIR. As mentioned to you earlier, the San Francisquito Creek Joint Powers Authority was not noticed, nor supplied a copy of the DEIR to review until the closing date of May 15th,2001. It is unfortunate that the Joint Powers Authority (JPA) was not included in the distribution of the DEIR nor noticed of public meetings. As such, the comments we are able to provide focus on addition of the JPA in the Documents, and not with the substance of the maintenance program.

We have had an opportunity to quickly read the document and in general, support the concept and approaches we see. We look forward to coordination of these activities on the San Francisquito Creek and offer the following comments:

- -2 Include San Francisquito Creek lower reach in the *Projected Sediment Removal and Vegetation Management Work Areas;*
- -3 Review *of Maintenance Guidelines* for San Francisquito Creek, and coordination of these activities with other agencies within the JPA;
- -4 Include the 'San Francisquito Creek Bank Stabilization and Revegetation Master Plan' within the *Linkages to other Programs and Projects* sections;
- -5 Include San Francisquito Creek in the *Arundo donax removal / mitigation measure.*

-6 Currently, the only reference to the JPA is within the Draft document of the Stream Maintenance Program, *Section B. RELATED PROGRAMS AND PROJECTS, Item 3. Comprehensive Flood Management Projects (district Project # 000404).* This project is only one way in which the JPA is involved with the District. The JPA is currently working with the Districts NorthWest Watershed Manager, the TMDL permitting efforts, and is signatory to the WMI. Director Greg Zlotnick sits on the JPA Board of Directors as the District representative.

JPA

7 The JPA must be listed in the DEIR *Section E. SPECIAL PURPOSE LOCAL*
AGENCIES, as an agency with jurisdiction that includes lands managed by the District.
Section *III-7-e states "there are no binding documents that require the District to comply*
with stated goals and policies of each city and county." However, the JPA agreement
8 signed in May of 1999 by the District is a binding document for compliance to the *JPA*
stated goals and policies and as such should be referenced.

9 Because San Francisquito Creek is not entirely managed by the District, the recommended procedures for carrying out the Stream Maintenance Program will need to be structured to be coordinated with the JPA. I believe this can be addressed by *adding the JPA to the list of agencies in Chapter 3, section C Annual Reporting,* so that there is an opportunity to review the District's Work Plan prior to the commencement of work. Although the JPA is not a regulatory agency, it is responsible for coordinating activities for the San Francisquito Creek watershed within the member agencies' jurisdiction.

Recognizing that the JPA / District relationship is a relatively new one, I would be happy to support you in your efforts to expand upon the relationship within the documents. Please advise as to how we might help you with this.

Thank you again for the opportunity to comment.

Sincerely,

Cynthia D'Agosta

Cynthia D'Agosta
Executive Director
San Francisquito Creek JPA

Cc:

Board Member Dena Mossar, City of Palo Alto
Board Member Greg Zlotnick, Santa Clara Valley Water District
Board Member Rose Jacobs-Gibson, San Mateo County
Board Member Chuck Kinney, City Of Menlo Park
Board Member Duane Bay, City of East Palo Alto
Associate Member Pat Schowalter, CRMP
Associate Member Chris Christofferson, Stanford University
Stan Williams, CEO Santa Clara Valley Water District

[illegible]

Responses to Comments in San Francisquito Creek Joint Powers Authority Letter

JPA-01

The San Francisquito Creek Joint Powers Authority subsequently reviewed the EIR and SMP and submitted a revised comment letter on May 22, 2001.

JPA-02

See Response to PA-02 and PA-03.

JPA-03

The Joint Powers Authority will be included in the review of San Francisquito Creek maintenance guidelines.

JPA-4 and JPA-06

The following information is added to Chapter 6 Linkages to Other Programs and Projects of the SMP at the end of page 6-22 to include associated projects on San Francisquito Creek and the Pajaro River:

13. Pajaro River Basin Study (District Project No. 501601)

Purpose: Continued liaison with the Pajaro River Watershed Flood Prevention Authority (Pajaro Authority), U.S. Army Corps of Engineers, plus other agencies and organizations to coordinate a watershed management plan and feasibility study to remedy water quality, flood damage and other problems in the Pajaro River Basin.

Location: Pajaro River Watershed.

Environmental Resources: Water quality and watershed habitats

Type of Documents: A Final Reconnaissance Report and Draft Project Management Plan is due to be completed by the U.S. Army Corps of Engineers in 2001. Implementation documents will follow.

Schedule for Development and Implementation: Ongoing. Local agencies and organizations have been working with state and federal agencies on this watershed for over a decade. The current period can be characterized as a period of development and implementation of specific watershed improvement measures.

Participants: Santa Cruz, San Benito, Santa Clara, and Monterey Counties, San Benito County Water District, Monterey County Water Resources Agency, Santa Cruz Zone 7 Flood Control District, and the Santa Clara Valley Water District are the eight agencies that comprise the

Pajaro Authority. The U.S. Army Corps of Engineers and other agencies are also involved with the proposed work. Business, environmental and other interest groups are also active participants in the basin study efforts.

Linkages: The Pajaro River Basin Study project provides ongoing coordination to facilitate multi-jurisdictional planning and implementation of flood control protection, water quality improvement and habitat restoration. Stream maintenance and mitigation is a central issue for the Pajaro Authority JPA and others, which links it to the District Stream Maintenance Program.

14. San Francisquito Creek Coordination (District Project No. 102805)

Purpose: Continued liaison with the San Francisquito Creek Joint Powers Authority, U.S. Army Corps of Engineers, and San Francisquito Creek Watershed Council, previously known as Coordinated Resource Management and Planning Group (CRMP), to coordinate a multi-objective watershed improvement project, supportive projects and cost allocations.

Location: San Francisquito Creek Watershed.

Environmental Resources: Water quality and watershed habitats

Type of Documents: The San Francisquito CRMP prepared a Draft Watershed Management Plan in 1997, and a Reconnaissance Investigation Report of San Francisquito Creek in 1998. In 2000, a San Francisquito Creek Bank Stabilization and Revegetation Master Plan Report was sponsored and completed by the members of the JPA (initiated prior to hiring staff for the JPA). Since CEQA and regulatory permits have not been completed for any of these documents, implementation cannot be started. The report serves as a guideline for acceptable bank stabilization and revegetation projects. There are also interim maintenance efforts under design.

Schedule for Development and Implementation: Ongoing. Local groups have been working on this watershed since the early 1990s. The current period can be characterized as a period of development and implementation of specific watershed improvement measures.

Participants: The cities of East Palo Alto, Menlo Park and Palo Alto, plus San Mateo County and the District comprise the San Francisquito Creek Joint Powers Authority membership. The U.S. Army Corps of Engineers and other agencies are also involved with the proposed work. Business, environmental and other interest groups are also active participants in the JPA efforts.

Linkages: The San Francisquito Creek Coordination project provides ongoing coordination to facilitate multi-jurisdictional planning and implementation of flood control protection, water quality improvement and habitat restoration. Stream maintenance and mitigation is a central issue for the JPA, CRMP and others, which links it to the District Stream Maintenance Program.

JPA-05

As discussed on SMP page 5-15 paragraph 5, the Giant Reed Removal program will evaluate all creeks in Santa Clara County. As mapping is completed and priorities for removal developed in the first two years of the program, San Francisquito Creek will be given appropriate attention in respect to criteria developed through this county-wide evaluation.

JPA-07 and JPA-08

The discussion on page II-7 of the EIR recognizes that the District complies with joint use agreements such as the agreement with the San Francisquito Creek Joint Powers Authority. The following information is added to Chapter III Plans, Ordinance and Policies of the EIR at the end of page III-66 to include the San Francisquito Creek Joint Powers Authority and Pajaro River Watershed Flood Prevention Authority:

4. San Francisquito Creek Joint Powers Authority

The San Francisquito Creek Joint Powers Authority (JPA) consists of 5 member agencies who have adopted a joint powers agreement regarding the protection and maintenance of San Francisquito Creek and its watershed. The purposes of the JPA are to facilitate and perform bank protection and creek maintenance, plan flood control measures, preserve and enhance the environmental values, and coordinate emergency response on San Francisquito Creek. The member agencies are the cities of Palo Alto, Menlo Park and East Palo Alto, the Santa Clara Valley Water District, and the San Mateo County Flood Control District. The JPA is currently coordinating with the District on flood control planning efforts, maintenance efforts, Total Maximum Daily Load (TMDL) permitting, and is a participant in the WMI process.

The Corps and San Francisquito Creek Coordinated Resource Management and Planning Group also participate with the JPA on these and other associated projects on San Francisquito Creek. The San Francisquito CRMP prepared a Draft Watershed Management Plan in 1997, and a Reconnaissance Investigation Report of San Francisquito Creek in 1998. In 2000, a San Francisquito Creek Bank Stabilization and Revegetation Master Plan Report was completed by the members of the JPA (prior to formation of the JPA). Business, environmental and other interest groups are also active participants in the JPA efforts

5. Pajaro River Watershed Flood Prevention Authority

The Pajaro River Joint Powers Authority, Corps and other agencies and organizations are coordinating a watershed management plan and feasibility study to remedy water quality, flood damage and other problems in the Pajaro River Basin. A Final Reconnaissance Report and Draft Project Management Plan is due to be completed by the Corps in 2001.

Participants include Santa Cruz, San Benito, Santa Clara and Monterey Counties, San Benito County Water District, Monterey County Water Resources Agency, Santa Cruz Zone 7 Flood Control District, and the Santa Clara Valley Water District. Business, environmental and other interest groups are also active participants in the basin study efforts.

JPA-09

See response to EPA-12.

Cindy Roessler

From: Stallman, Jim(SMTP:Jim.Stallman@novellus.com)
Sent: Tuesday, May 15, 2001 12:00 PM
To: 'cindroes@scvwd.dst.ca.us'
Subject: SMP Input

I thought that the deadline for submittals to the SMP EIR was today but notice that it was yesterday. So I missed the deadline.

JS Would you be able to forward this note to a staff biologist or other entity that could answer my concerns below?

1 #1. The SMP was really pretty hard to comprehend given the magnitude of the project. I don't know that a maintenance strategy involving one size fits all is befitting of our spectrum of watershed streams in Santa Clara County. My question is why should habitat be destroyed on an annual basis just to simplify operations? The end objective is to keep stream capacities intact. Specific actions for specific situations under specified constraints would be a better solution.

2 #2. Was anything said in the documents about maintaining continuous stream flows or is this called out in another maintenance program?

3 #3. It appears to me that neither the roundup nor the scraper attacks to the riparian environment should apply upstream of a certain point. Selective abatement of debris and erosion should take the place of mechanization or defoliation in order to protect habitat and stream health. An example I suggest is to not do any of the SMP alternatives except downstream of 101.

s/

Jim Stallman
19740 Braemar Drive
Saratoga, CA 95070

408/867-9797

Responses to Comments in Jim Stallman Letter

JS-01

The SMP is intentionally designed as a comprehensive, District-wide maintenance program. By organizing and evaluating routine maintenance practices into a program, the District is better able to assess cumulative impacts, consistently apply BMPs, and develop a comprehensive mitigation program. The SMP is meant to balance the District's objectives of flood protection and other public benefits with the District interest and environmental protection. The maintenance techniques, mitigation, and BMPs are described so as to apply to the entire District-wide program, but the application of the BMPs is specified by the environmental conditions under which the anticipated maintenance will take place. Many of the BMPs are specific to certain stream reaches or geographic portions of the County.

JS-02

Maintaining continuous stream flows is beyond the scope of the SMP.

JS-03

"Selective abatement" with herbicides is performed in place of non selective mechanical removal. The selective use of herbicides as described in the SMP allows riparian vegetation to establish in some areas while being prevented from establishing in areas of concern relative to flood control. "Defoliation" is not a goal of the program. When properly implemented, as described in the document, riparian corridors and habitat values can be balanced with flood control guidelines. These guidelines apply to all reaches of creeks and therefore cannot be subjected to a "one size fits all" approach relative to maintenance.

Ms. Jan Unland, telephone message to Ms. Cindy Roessler (District), May 4, 2001.

Comment JU-01:

Ms. Unland expressed concern about spraying herbicides along county streams. She does not think it is in alignment with Measure B and that the EIR discouraged doing that because it will affect wildlife. She noticed that it also affects people who live and walk along streams and have immune system problems. She wants to put in her official vote against doing that and hopes the District would consider it seriously.

Responses to Comments in Jan Unland Message

JU-01

Page II-12 of the EIR describes in details how herbicides are selected and used at various streams. The District uses various tools as part of its vegetation management program, including hand and mechanical control as well as chemical control. In general, herbicides are more effective at controlling vegetation than mechanical or hand removal methods. Responsible herbicide use can be less disruptive to wildlife than either hand or mechanical control because herbicides can be used less frequently and with less disturbance to wildlife behavior. Regulatory agencies have also encouraged herbicide use to control invasive non-native plants such as giant reed in streams. Herbicides are applied infrequently, usually once and not more than twice per year, so that the overall exposure is minimal. As explained in the EIR, chronic effects would not result from District herbicide use. See also response to comment TM -03 and master responses regarding alternatives and aquatic herbicides. The Preferred Alternative has been switched to the Modified Pajaro River Basin Alternative which limits the use of herbicides in South County.

The District does not broadcast spray across the channel but selectively sprays herbaceous or woody plants targeted for removal at each particular stream reach. In streambeds where the removal of woody plants is required, only saplings no greater than 2-inch in diameter at breast height are removed in the target area. In upland areas, the District uses herbicides on maintenance roads to provide a clear access area and on levee slopes to eliminate broadleaf weeds. The District selects and uses herbicides that minimize worker and public health risk and avoids environmental impact. The District uses only herbicides that are approved by federal and state agencies and that have undergone extensive testing for environmental safety.

Measure B was developed to meet the mission of the District through the comprehensive management of water resources in a practical, cost-effective, and environmentally-sensitive manner. Measure B proposed a balanced program in providing flood protection, water quality protection, habitat preservation, and recreation. The proposed Stream Maintenance Program was developed with the same approach in providing flood protection while protecting water quality and preserving stream habitat. See also response to Comment WW-01.

From: C or C[SMTP:kingcc@attglobal.net]
Sent: Monday, May 07, 2001 5:39 PM
To: marcguzz@scvwd.dst.ca.us
KI **Subject:** Herbicide Spraying

To: Tony Estremera and all the directors of the Santa Clara Valley Water District;

-1 We are violently opposed to ANY herbicide spraying along
-2 the creeks in our valley! We don't believe that it would save
the county any money and we know that it would be a
-3 detriment to the thriving wildlife habitats and populations that
we see and hear along the water every day. We don't
-4 believe that you know enough about the poison's affect on
every living thing in the soil and water. We haven't forgotten
-5 that this was an issue in 1974 and that you stopped spraying
herbicides because of public opposition. We just want to
remind you that we are still here, living along the stream
-6 banks, and we do not want you to come through our
neighborhood spraying your poisons even once, much less
annually.

-7 The last time you did your "flood control work" on our part of the creek, you brought a bus load of prisoners in, and they systematically laid waste to the stream bed and even left some of the banks bare and subject to runoff. After you drove away, the creek then ran through what looked like the surface of the moon. It has taken many years for nature to undo your damage.

We will not be silent about your proposal to begin such an environmentally damaging spraying program.

CC: Morgan Hill Times

Frank and Cynthia King
15210 Yvonne Dr
Morgan Hill Ca 95037-9620
kingcc@attglobal.net
Voice-408-779-1567
FAX -781-207-5664

C:\TEMP\King Email.wpd
5/30/01

Response to Comments of Frank and Cynthia King, residents of Morgan Hill

KI-01

The District understands your concerns over herbicide use. One of the main purposes of the Stream Maintenance Program EIR is to ensure that the benefits of herbicides used in the course of District maintenance activities do not provide any greater effect on the environment than other options.

KI-02

See response to AU-07.

KI-03

See master response regarding alternatives for a discussion of the limited use of herbicides in the Pajaro River Basin and a reduced projection of wildlife effects.

KI-04

Appendix H of the SMP defines and documents the health and safety impacts of the herbicide products. Products are listed in the slightly toxic to practically non toxic categories relative to humans and wildlife: The District has purposely selected the least toxic products as tools in the SMP. Further, District staff have always taken the lead in reducing risk relative to herbicide use to the maximum practicable extent. A description of these ongoing efforts can be found on pages 2-8 through 2-10 of the SMP document. See also master response to aquatic herbicides.

KI-05

Page 2-8 of the SMP describes the details of the District discontinued use of herbicides in the Pajaro River Basin which includes the details of the 1974 action. Changes and improvements to the program since that time are also documented there, including the rationale for reinstatement of herbicides in the Pajaro River Basin. The District also has not forgotten these incidents, and as a result has continued to improve its program beyond regulatory requirements as described in the SMP.

KI-06

Comment noted. The herbicides proposed for use in the SMP are poisonous to targeted plants, however, BMPs are applied to avoid effects to non target plants. These herbicides are documented to have minimal to no observable effect on other life forms.

KI-07

See response to comment KI-03.

Cindy Roessler

From: JLucas1099@aol.com(SMTP:JLucas1099@aol.com)
Sent: Monday, May 14, 2001 11:16 PM
To: cindroes@scvwd.dst.ca.us
Subject: Stream Maintenance EIR

May 14, 2001

Santa Clara Valley Water District
Project Management Unit
5750 Almaden Expressway
San Jose, CA 94022

cindroes@scvwd.dst.ca.us
Attention: Cindy Roessler, Project Manager

Dear Cindy,
Inspite of the extensive public workshops you have held on this Stream Maintenance EIR, there are elements of the EIR with which I disagree, some former environmentally sound maintenance practices that are not mentioned, and areas where planned BMP's do not appear biologically sensitive enough for a plan likely to last 20 years.

Sediment Removal : There is no mention of the past practice of working alternate sides of a stream on alternate years ~~to~~ give fallback refugia to the resident fish and wildlife. This is an admirable conservation BMP and should be continued. If not, then adjacent refugia of in kind value and wetlands needs to be identified and the means by which wildlife will be encouraged to transfer to that location scientifically supported. In particular Western Pond Turtle and the California Red-legged frog need to be preserved in their present habitat for the biodiversity of the stream and the strength of the gene pool in that region. The California Clapper Rail, the Least Tern and the Western Snowy Plover need equally conservative management practices. Pond A-4 will not provide substitute habitat for a least a decade and these sensitive species of the Baylands demand upland feeding and nesting refugia. The proposed mitigation options do not guarantee resident wildlife survival.
This is a deficiency.

Vegetation Management: If the District intends to manage streams in a safe, sound, and an environmentally friendly way, then I believe they must discontinue much of the herbicide and pesticide use, substitute mowing for discing, and reconsider levee design. The amount of herbicide use has increased since 1998.
The concept of denuded stream banks and levees runs counter to a concern for the sediment load that is gumming up the streams. Why not vegetate the river banks with deep-rooted grass species that will need minimum maintenance and cluster plantings so they will have more resistance to being swept downstream in major storm events. The build-up of pesticides in the stream systems is deadly for man and beast. Wildlife is diminished, recreation use is more hazardous than is healthy, and children and small animals are put at risk.
The use of wetlands and the 50 to 100-foot buffer of riparian vegetation to remove pollutants from runoff to the stream is essential for water quality in the stream, and in the South Bay. To not address this cumulative direct and

L

-6 indirect impact to water quality is a deficiency in this EIR.

-7 Bank Protection: This is a many faceted problem as every stretch of stream is different. An extensive geomorphological assessment should be on record for each of the Valley streams which would include gradient, stream type, soils, and watershed characteristics. It would not seem impossible then to establish baseline criteria for bridges (which do the most thorough job of destabilizing a given reach of stream) and intersecting storm drains. If one looks at the railroad bridge river crossings, one gets an idea of how proficient old railroad engineers were by the time they reached California. Bridges should have stringent guidelines as to how they are angled to stream and placed at height of riverbank. Storm drains should not be at right angles to stream flow but feathered in as a tributary stream. All these structures cause serious erosion of river banks if done improperly and the cumulative cost to the District is not negligible. The second catalyst for bank
-8 erosion, which could be considered geomorphological in nature, is the load of too great a volume of water for a given stream. This is handled in older civilizations in an agriculturally kind way by running a stormwater overflow ditch parallel to the natural stream which can be used to irrigate lands while not compromising the beneficial instream uses of the river. It would seem that this philosophy could be highly desirable in this Valley, to divert storm waters of ten to fifty year events to underground conduits and storage for alternate use. In the original Lick Mill and Agnews design they knew it was useless to try to drain major storm events back to the Guadalupe River and so the drains were extended to the Bay. This is simple farmer common sense which, with new terminology, should be an option.

-9 The methods of bank erosion stabilization are preferably the simulation of more natural river bank conditions, whenever possible, as they would not be as expensive for the long term in regards maintenance and herbicide use.

-10 When herbicides and pesticides are used, signs should alert people to the fact, so if they are highly sensitive or allergic they can chose to walk a different path. Also, District staff used to notify city staff before they came into city limits on maintenance work and this practice should be continued. Then, in case new ordinances have been passed or new conservation easements established, the District personnel could act appropriately. It should be noted, for instance, that there are no-spray conservation easements along Adobe Creek at Redwood Grove in Los Altos, and in Los Altos Hills, and Heritage Oaks Park on Permanente Creek in Los Altos. Shoup Park in Los Altos has SCVWD for part of its Adobe Creek frontage, but the creek is used by children for blackberry picking and for studying water spiders and tadpoles so is a very important interface that needs protection. Please include language in this document that makes such considerations part of BMP's.

-11 There is reference to a Table 5 and a Chapter 5 compensatory mitigation
package that I am not finding? On V-25 I disagree that engineered and
12 geomorphic solutions cannot be implemented at the present time (or for the
next twenty years?). They are long overdue. As to the alternatives analysis
13 I request an extension to compare data Tables V-1 to V-4. I support the no
14 herbicide alternative (V-10), and am opposed to rodenticides as the impact on
the entire food chain, and to raptors, can be lethal, and not in spirit of
15 biodiversity. I do not favor stream dewatering if viable bypasses are not
16 engineered. I feel off-site mitigation is a last resort alternative and that
no net loss of wetlands and continuity of the riparian corridor is of
17 paramount importance for biodiversity. Otherwise, there are fractured
communities and weakened gene pools that result in unhealthy wildlife
18 species. In Biology IV-B-111 Impacts Determined to be less than Significant
Without BMP's is not a valid assessment and in this statement I find the

EIR to be deficient. This can not be said to fulfill the SCVWD environmental promise made by Measure B to the voters last November. With the use of Roundup, at 1021 gallons, for 50% of District herbicide maintenance, and an increase in the use of Gallery (159.85 to 447 lbs.), Garlon 3A and 4 (25.690 to 67 gals.),Oust from 147.30 to 206 ounces, Pendulum from 3197.60 to 3576 pounds, Rodeo from 379.38 to 750 gals. and Target from 175.826 to 310 gals., in the past three years, and an increase in vegetative management work to 4000 acres, (from 2789 as of 1991-92), the reliance on chemicals is up. 15

This is not as incisive a review of this very important document on District operations as I would like to have submitted to you. I am adamantly opposed to the use of Roundup and cringe at the volumes of Pendulum that the District chooses to have its maintenance staff spray on roads and levees, with possible drift to neighborhoods.

20 I request a return to the maintenance procedure of alternative bank sediment removal on intermittent years. This is a thoughtful approach to a necessary disruptive process. Lastly, I would request that the District adhere to the
21 mandate of no net loss of wetlands, and compute the wetlands in linear feet with the dynamics of wetting that a natural stream system provides. This applies to freshwater stream wetlands as well as tidal riverine wetlands. The restoration of the original Guadalupe River alignment just north of #237
22 would give extensive saltwater wetlands as well as a breakaway for flood waters in the Guadalupe River if it could be done without impacting the protected waterfowl of the Cargill pond.

Sincerely

Libby Lucas
174 Yerba Santa Ave.,
Los Altos, CA 94022

PS Please accept this somewhat less garbled version.

Responses to Comments in Libby Lucas Letter

LL-01

See BMP 3.6, *Remove Sediment from One Side of Large Channels in Alternate Years*. See also response to comment WW-45 regarding a minor revision to this BMP. Note that the full language of each BMP is included in the BMP table. Elsewhere, the BMPs are just referred to by their short title.

LL-02

The project has not identified significant adverse impacts to upland feeding and nesting refugia for the Least Tern, the Western Snowy Plover, or the California Clapper Rail. Therefore, the Program has no compensatory mitigation requirements for nesting refugia and upland feeding habitat for these species. The Program has identified, however, potentially significant adverse impacts to foraging habitat for the California Clapper Rail. Foraging habitat for the Clapper Rail will be available during the period that the Pond A4 mitigation wetland is developing. Impacts to tidal wetlands, which may be used for foraging by Clapper Rails, are not likely to occur within the same year on all creeks. The initial impacts to foraging habitat under the Program may coincide with establishment of comparable habitat within the mitigation site. In addition, the impacts to foraging habitat from sediment excavation are not permanent. Results of studies on the regrowth of tidal wetland vegetation after sediment is excavated (Rankin and Hillman 2000) indicate that foraging habitat becomes reestablished after sediment is excavated. Finally, mud flats that are present in the interim period between a maintenance event and the reestablishment of wetland are available for foraging by the California Clapper Rail.

LL-03

The District uses herbicides as one of several methods to manage streams in a safe, sound and environmentally friendly way. The District's herbicide program has remained constant in regard to treated area since 1998. Apparent increases in some herbicide products are offset by decreases or elimination of others. For example, District records, as reported to the Santa Clara County Agricultural Commissioner's office, show an increase of in the use of Pendulum between 1998 and 2000. During this period, the District discontinued use of Predict, due to its potential to leach into groundwater, which was discovered in 1999. Roundup use has increased to offset the reduction and elimination of the more toxic, yet most effective residual herbicides. Generally, use of all other products has remained constant during this period.

Relative to replacing discing with mowing, the District has chosen to minimize the total discing area of each identified parcel. This provides defensible space from a fire hazard standpoint, while preserving as much vegetative cover as wildlife habitat as possible on each parcel. The District considers the appropriate control type for each parcel, and where practical performs mowing or alternative methods. Mowing is often required two or more times in a year to achieve the same results as a single herbicide application, causing additional disturbance to the area.

LL-04

"Denuded stream banks" are not a component of the stream maintenance program. Pages 2-11 and 2-12 of the SMP describe the program which allows for grasses to remain on channel banks and levee slopes to prevent erosion, minimize sediment transport and provide a vegetative buffer. This is accomplished in part by use of the selective herbicide Garlon which controls weeds but leaves grasses on banks.

LL-05

The District herbicide application methods are not likely to result in a "buildup" of pesticides in the streams systems. The post emergent herbicides, glyphosate and triclopyr, are considered to have low persistence in the environment. The pre-emergent herbicides have a greater persistence in the environment, but have far lower water solubility and are not highly mobile. Their mode of action is to leach only a few centimeters below the soil surface in order to have the maximum effect on potential germination of seedlings which occurs near the surface. The EIR does describe possible changes in the availability of certain pre-emergent herbicides (so-called "list B"). If it is determined that these herbicides have a potential to leave their site of application and enter the stream environment, there would be a potential for pesticide buildup, and hence the use of these substances or their method of application would be changed. As described on pages IV-D-9 and 10 of the EIR, the District is reviewing a recent CDPR proposal for new restrictions on several "list B" pre-emergent herbicides which the District uses, and will revise its use of these herbicides if deemed necessary to prevent ground and surface water contamination.

LL-06

Most of the stream vegetation that would be affected by routine maintenance activities is already subject to periodic disturbance. District studies have found that this wetland vegetation often quickly re-establishes following sediment removal projects (see EIR pages IV-B-59 and 60). Even though this wetland vegetation regrows between disturbances, the District utilizes BMPs as described on page IV-B-65 of the EIR to minimize the removal of stream vegetation, and will mitigate cumulative impacts by restoring, creating, and protecting wetlands, streams, and watersheds. These mitigation sites would not be subject to repeated disturbance and would continue to protect water quality in perpetuity.

LL-07 and LL-08

During design of each bank protection project, the geomorphological conditions of the project site and vicinity are investigated. Redesign of bridges, storm drains, and the installation of storm bypass channels are not considered routine maintenance, and therefore are not included in the SMP, although they could be considered during design of new District flood protection projects.

LL-09

Comment noted.

LL-10

The District is not required to post signs when applying herbicides because the type of application is characterized as "right-of-way" and therefore is considered a non-crop application. Generally, requirements to post notices regarding herbicides application are limited to herbicide use on crops. The amount of herbicide spray solution utilized by the District is small and the material dries quickly. The potential for contact to the sensitive public is minimal. The District only applies herbicides where it owns or has an easement over the land; if the city or park has a no spray policy, that would need to be communicated with the District as landowner or easement holder.

However, as part of its new Pesticide Policy (see response to TM-04 for more details), the District will develop a policy of posting signs when it is spraying herbicides on facilities with recreational trails or where the public tends to access. The parks mentioned by the commenter are not ones where the District undertakes herbicide spraying.

LL-11

Chapter 5 of the SMP is located on pages 5-1 through 5-24 of the SMP document, as opposed to the EIR. Table 5-1 lists Wetland and Riparian Compensatory Mitigation and is located in the SMP document on page 5-19.

LL-12

As stated in the 4th paragraph on page V-24 of the EIR, geomorphological solutions are outside the scope of the SMP because they generally would require time consuming development of Capitol Improvement Projects, substantial funding from unidentified sources, acquisition of substantial additional right-of-way in urban areas, or control over land use in watersheds which is beyond the authority of the District. Some maintenance sites, particularly tidal sediment removal sites, have no prospect of change to eliminate sediment deposition and would always require maintenance to keep flood capacity at design levels. Some changes could be made in the course of Capitol Improvement Projects, but that would still leave the rest of the stream system needing routine maintenance.

LL-13

Commenter requests a time extension to review Tables V-1 and V-4. The 45-day public review period was provided for review of the Draft Environmental Impact Report (DEIR). See revisions to these tables in the EIR.

LL-14

Comment noted.

LL-15

Burrowing rodents are controlled to minimize damage to levees on streams and canals. BMP 3.21, *Minimize Rodenticide Impacts on Non-target Species*, provides guidelines to minimize impacts on non-target species from the use of rodenticides. Rodent control areas will be reviewed for the potential presence of special status species and the rodent control methods will be tailored to minimize non-target impacts. When chemical control is necessary, the use will be guided by label restrictions and any advisories published by the California Department of Pesticide Regulation (CDPR) or the County Agricultural Commission. The EPA bulletin Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County provides additional guidelines for rodenticide use. In addition, the rodenticide applicator shall remove carcasses of poisoned animals, when they are found, to minimize secondary toxic effects on raptors or other wildlife. Also see response to comment CDFG-27.

LL-16

The District typically prefers diverting flows around a work-site (bypass) rather than dewatering an entire reach of creek because water diversions are more cost effective and have less impact. There are times, however, when there is no alternative to dewatering a section of creek. BMPs 1.2, *Tidal Work Areas,* 1.3, *Dewater/Bypass Water at Non-tidal Sites*; 1.4, *Avoid Erosion When Restoring Flows*; and 1.7, *Pump/Generator Set Operations and Maintenance,* protect resources during either dewatering or bypass of flows.

LL-17

As discussed on pages IV-B-59 to -66 of the EIR, no-net-loss of wetlands is addressed since there will be no permanent loss of wetland habitat, interim regrowth will occur between maintenance events, and offsite mitigation is provided. While developing the compensatory mitigation program as described on page 5-2 of the SMP, it was determined that the potential for on-site mitigation was limited since routine maintenance impacts will continue to occur at the same location as the original impacts, and therefore off-site mitigation would be preferable for those impacts which could not be avoided or further minimized on-site. The compensatory mitigation program addresses no-net-loss of wetlands by providing permanent creation and restoration of tidal and freshwater wetlands and watershed preservation to compensate for impacts. The continuity of the riparian corridor is addressed in the EIR on pages IV-B-69 to IV-B-75 under Impacts Bio-4 and Bio-5. See also response to EPA-02.

LL-18

The discussion on page IV-B-111 of the EIR briefly lists what impacts were determined to be less than significant without BMPs. This is not a summary statement finding that all impacts are less than significant without BMPs.

LL-19

Increases shown in the SMP are projections and should be viewed as such. Page 2-12 of the SMP states "On average, vegetation management work is annually performed on approximately 4,000 acres." This acreage refers to the total inventory of vegetation management work by all herbicide and non-herbicide methods and in upland and channel areas. The SMP goes on to state "Within this larger work area, the targeted treatment area consists of approximately 2,000 acres." In no given year is all of the work performed within the inventory. Any increases in overall inventory since 1991-92 would most likely be due to completed capital improvements on facilities within the SMP. Refer to response to WW-01 regarding Measure B.

LL-20

See response to LL-01.

LL-21

See response to EPA-02.

LL-22

The restoration to the original Guadalupe River alignment just north of Highway 237 was evaluated in the Lower Guadalupe River Project as one of the alternatives considered. The analysis shows that this alternative would require widening the floodplain of the river and complete re-construction of a meandering geomorphological bankfull channel, incurring major impacts to the existing channel fish and wildlife habitat, homes and businesses. The river would meander within a wide corridor and the analysis with historical data shows that a meander belt of close to 1,600 feet wide would be required.

LEAGUES OF WOMEN VOTERS OF SANTA CLARA COUNTY

LOS ALTOS-MTN. VIEW AREA
SAN JOSE-SANTA CLARA
CUPERTINO SUNNYVALE
LOS GATOS SARATOGA
PALO ALTO

May 4, 2001

Cindy Roessler and Mark Wander
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Cindy and Mark,

LWV

Thank you so much for the excellent presentation about the SCVWD stream maintenance plan you gave to a group of League of Women Voters members on April 26th. Everyone was glad they came and felt they learned a lot.

-1 It's unfortunate that there will be some impacts for which there will be no mitigation. We hope the District will continue to look for environmentally friendly ways to address those issues, especially the fragmentation of habitat. We like the District's policies of environmental protection and stewardship and hope you will find ways to minimize adverse environmental effects and encourage preservation and restoration.

-2 We will continue to be concerned about the use of pesticides and herbicides. We appreciate the efforts the District has made to limit the kinds and amounts of such products they use and that there are some weeds (like arundo reed) that can't be effectively removed without herbicides. We'd like to see your proposed IPM policy when you are ready to send it to the Board.

Thank you again,

Ann Coombs

Ann Coombs
65 No. Avalon Drive
Los Altos, CA 94022

Responses to Comments in League of Women Voters Letter

LWV-01 and -02

An extensive mitigation program has been proposed, however, some cumulative impacts cannot be reduced to a level of insignificance. As discussed on page IV-B-70, the affected wildlife species occur in flood control channels where the proposed maintenance must occur, BMPs cannot completely avoid on-site effects, and off-site mitigation will not completely replace habitat for wildlife species which continue to utilize the streams in which maintenance work is undertaken. Thus, some significant, cumulative effects still occur. As discussed on page 3-4 of the EIR and in response to RWQ-SF-27, the BMPs will be reviewed each year to determine if they can be improved to further reduce impacts. See also responses to comments CDFG-31 and MP-03 regarding District efforts to continue to look for mitigation sites. See response to TM-04 regarding the District's development of a new Pesticide Policy. This policy will be provided to the League of Women Voters.

Regional Open Space

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT

May 14, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

RE: Draft Stream Maintenance Program and Environmental Impact Report

Dear Ms. Roessler:

On behalf of the Midpeninsula Regional Open Space District, I would like to submit the following comments regarding the Santa Clara Valley Water District's *Draft Stream Maintenance Program and Environmental Impact Report*. The Midpeninsula Regional Open Space District owns and manages approximately 46,000 acres of open space land on the San Francisco Bay peninsula, including lands in the cities of Palo Alto, Mountain View, Sunnyvale, Cupertino, Saratoga and Los Gatos, which are within Santa Clara Valley Water District boundaries. As an active open space preservation agency, we expect to acquire more lands within the Santa Clara Basin. We look forward to working closely with Santa Clara Valley Water District to help implement the Stream Maintenance Program. MP

-1 Stream Maintenance Program Preferred Alternative
The District supports the preferred Multi-Year Program Alternative of the Stream Maintenance Program, which balances flood protection of streams and water delivery of canals with the long-term protection of the Santa Clara and Pajaro River Basins and the region's biodiversity.

-2 Acquisition of Land and Conservation Easements
The District encourages the purchase of land and conservation easements to preserve, protect and improve watersheds and streams. The criteria established to evaluate and prioritize acquisitions will ensure compensation for impacts to freshwater wetlands caused by maintenance activities in stream channels and canals.

-3 Stream and Watershed Protection
The mitigation activities to compensate for impacts to freshwater wetlands recommended in the *Draft Stream Maintenance Program* are directed at preservation and improvement of streams that are generally in a fairly undisturbed state and in good ecological condition. However, the District believes that restoration and enhancement of degraded streams is equally important in improving watersheds and maintaining regional

330 Distel Circle • Los Altos, CA 94022-1404 • Phone: 650-691-1200
Fax: 650-691-0485 • E-mail: mrosd@openspace.org • Web site: www.openspace.org

Board of Directors: Pete Siemens, Mary C. Davey, Jed Cyr, Deane Little, Nonette Hanko, Larry Hassett, Kenneth C. Nitz • *General Manager*: L. Craig Britton

biodiversity. Therefore, we recommend giving equal weight to restoration of degraded streams when identifying locations for mitigation activities.

Using the approximate per acre cost of Water District riparian mitigation projects as the basis of credit for restoration and management (1 acre of mitigation credit for each $150,000 of projects funded) is a logical and practical approach. In applying the mitigation credits, it would be beneficial to know whether these costs include planning and engineering for the implementation of specific projects, and subsequent monitoring to ensure their effectiveness. -4

-5 Environmental Assessment: Biological Resources
The discussion of mitigation measures for maintenance activities that require tree removal with active nests of migratory birds and birds of prey includes relocation of the birds that are present. The recommendations should also emphasize that removing trees during the non-breeding season would reduce impacts to the birds. Similarly, the discussion and recommendations regarding streambed cleanup should address the potential to reduce impacts on fish by conducting maintenance activities when the fish are not spawning.

The District encourages coordination and cooperation with agency partners to facilitate implementation of the proposed *Stream Maintenance Program* and we applaud your efforts to protect the watersheds. We appreciate the opportunity to comment on the *Draft Stream Maintenance Program and Environmental Impact Report*. Please contact me if you have any questions regarding our comments.

Sincerely,

Cathy Woodbury

Cathy Woodbury, ASLA/AICP
Planning Manager
Midpeninsula Regional Open Space District

Cc: MROSD Board of Directors
L. Craig Britton, General Manager

Responses to Comments in Mid-peninsula Regional Open Space District Letter

MP-01

Comment acknowledged.

MP-02

Comment acknowledged.

MP -03

The following revisions are made in response to this comment.

Add to end of paragraph 4, page 5-11, SMP:

> Streams that are currently disturbed, but that can be returned to good ecological condition under the program (as defined under MMRP criteria), can also be included.

Revise first sentence with the following on paragraph 5, page 5-11, SMP:

> This effort consists primarily of land acquisition, but also provides for some restoration, rehabilitation, and/or management ~~of acquired lands~~ to improve or protect stream condition (see MMRP).

Insert new paragraph under paragraph 5, page 5-11 SMP:

> Restoration, rehabilitation and management projects may be conducted on land acquired under this program, and may be also conducted on other lands. Other lands must meet the same physical and location criteria as those for land acquisition parcel selection (i.e., stream size, stream condition, habitat contiguity, basin and watershed locations, and land management).

Paragraph 2, page 5-13, add after first sentence:

> Other lands not acquired under this program, but meeting the land selection criteria and available for mitigation use, will also be evaluated.

MP-04

The cost per acre includes, as applicable, project design (including conceptual design, detailed design, Mitigation Monitoring and Reporting Program, Engineer's Report), implementation, monitoring (including reporting) and maintenance. Initial identification of potentially suitable restoration or management projects, project-specific CEQA evaluation, permit acquisition, regulatory agency project review and approval process (if required, for each individual restoration or management project), land use agreement negotiation, consultant and construction contract management are not included. Therefore, the per-acre cost to the

District is greater than $150,000, and will vary based on project needs. The $150,000 per acre cost will be adjusted to reflect inflation as the program progresses.

MP-05

BMP 3.2, *Minimize Impacts to Nesting Birds Via Site Assessments and Avoidance Measures*, incorporates the District's Nesting Migratory Bird Procedure (Appendix C of the SMP). This procedure does not call for relocating birds, rather it provides for preventative methods including the timing of any necessary removal of vegetation prior to the nesting season. The revised version of BMP 3.10, *Conduct In-Channel Work during the Dry Season* (see response to comment SFT-30), requires that work avoid the spawning season.

From: Richard Roos-Collins[SMTP:rrcollins@n-h-i.org]
Sent: Wednesday, June 13, 2001 10:47 AM
To: CindRoes@scvwd.dst.ca.us
Cc: Walt Wadlow; DaveChes@scvwd.dst.ca.us
Subject: Multi-year Stream Maintenance Program

NHI

Dear Ms. Roessler:

1 As counsel for the Guadalupe-Coyote Resource Conservation District, I request that the EIR and SMP require consistency with (A) the Adaptive Management Program and water quality certification for the downtown Guadalupe Flood Control Project (FCP) and (B) the settlement that is expected in the Fish and Aquatic Habitat Collaborative Effort (FAHCE). While the DEIR describes these related efforts, it does not require that the SMP will be consistent with the management objectives, mitigation commitments, and other measures adopted or expected to be adopted, respectively, in the FCP and FAHCE. Thank you.

Richard Roos-Collins
Attorney at Law
Natural Heritage Institute
2140 Shattuck Avenue, 5th Floor
Berkeley, CA 94704-1222
(510) 644-2900, ext. 103
(510) 644-4428 (fax)

Response to Comments in National Heritage Institute Letter

NHI-01

The Water quality Certification and Waste Discharge Requirements to be issued by the Central Coast and San Francisco Regional Water Quality Control Boards will contain conditions specifically for the implementation of the proposed Multi-Year Stream Maintenance Program (SMP). Permits from the U.S. Army Corps of Engineers and California Department of Fish and Game will also contain conditions that are specific to the SMP. The District will have to ensure that it meets permit conditions for the SMP and other regulatory conditions and agreements that may affect stream maintenance activities.

Regarding an adaptive management program, the SMP has proposed its own annual program review, evaluation, and modification. Refer to Chapters 3 and Chapter 4 of the SMP Report for the environmental review protocols and resource protection measures. Also refer to response to RWQ-SF-03 comment for additional information on the reporting frequency, contents of annual reporting, participants for the annual lessons-learned meetings, and update of BMPs, SMP process, and maintenance guidelines.

Regarding the management objectives, mitigation commitments, and other measures adopted for the Downtown Guadalupe River Project and FAHCE, they will be implemented and tracked separately by staff working on those two projects. See p.II-22 of the EIR for a discussion of the relationship between the SMP with capital improvement projects and non-SMP Maintenance Projects. Should those agreements require changes on how the Downtown Guadalupe River reaches and FAHCE streams should be maintained, District staff for those projects will modify the maintenance guidelines for those streams for implementation under the SMP.

City of Palo Alto
Public Works Department

May 9, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Divisions
dministration
50.329.2373
650.329.2299 fax
ngineering
50.329.2151
50.329.2299 fax
Environmental
ompliance
50.329.2598
50.494.3531 fax
quipment
anagement
50.496.6922
650.496.6958 fax
acilities
anagement
50.496.6900
650.496.6958 fax
perations
50.496.6974
50.852.9289 fax
Regional Water
uality Control
50.329.2598
650.494.3531 fax

PA

Subject: Comments on Draft Environmental Impact Report for the District's Stream Maintenance Program

Dear Ms. Roessler:

Thank you for providing the City of Palo Alto with the opportunity to comment on the environmental impact report prepared for the District's Stream Maintenance Program. We offer the following comments:

-1

1. General: The City supports the implementation of the *Stream Maintenance Program* and approval of the supporting Environmental Impact Report. Maintenance is a critical component of the District's flood mission to provide flood protection for local residents and businesses.

-2

2. Projected Sediment Removal and Vegetation Management Work Areas (*Stream Maintenance Program* Figures 2-1 and 2-2; Environmental Impact Report Figures II-2 and II-3): Several of the locations that City staff believe have a critical need for sediment removal and vegetation management are not shown on these Figures. As expressed in earlier comment letters and by personal testimony at focus group meetings, sedimentation and excessive vegetation in all of Palo Alto's creeks, particularly downstream of Highway 101, is a significant area of concern to the City of Palo Alto. In light of the recent findings that sedimentation and vegetative growth in Matadero Creek downstream of Highway 101 has a marked negative impact on the flood control capacity of that creek, I am concerned that a similar situation may exist on Adobe and San Francisquito Creeks. Therefore, I ask that the District include the lower reaches of all three Palo Alto creeks (San Francisquito, Matadero, and Adobe) in the scope of its *Stream Maintenance Program* EIR and regulatory permit application and add them to the Figures referenced above.

P.O.Box 10250
Palo Alto, CA 94303

PA

The *Stream Maintenance Program* EIR provides a unique opportunity to obtain environmental clearance and regulatory approval for all of the District's future maintenance needs. I know that lack of such approvals has seriously hampered the District's ability to conduct its maintenance activities for the past several years. If a particular maintenance activity or site is left out of the EIR/permitting process at this time, it would be very difficult and inefficient to seek separate approvals at a later date. Therefore, I believe that it is imperative that the District modify the EIR and permit application to fully address sedimentation in the lower reaches of San Francisquito, Matadero, and Adobe Creeks. The opportunity at hand to make a comprehensive assessment of all of the District's future maintenance needs is too valuable to pass up.

3. Maintenance Guidelines: The *Stream Maintenance Program* stipulates that annual maintenance activities will be conducted in accordance with established maintenance guidelines for each individual stream. City staff is concerned that the current maintenance guidelines for San Francisquito, Matadero, and Adobe Creeks, particularly downstream of Highway 101, are outdated and inadequate to ensure effective creek flow conveyance. It has been observed by City maintenance staff that excess sediment and vegetation in these lower stream reaches impedes flow. Flow impediment is not only a concern with regard to potential flooding events (i.e. 1% storms). Even during smaller rainfall events, the backwater effects caused by excess sediment and vegetation impede storm drain flows into the creek, leading to localized street flooding and an increased need for storm water pumping. In light of the recent findings on the impacts of sediment and vegetation on the capacity of Matadero Creek, I ask that the maintenance guidelines for Matadero, Adobe, and San Francisquito Creeks be reviewed and modified as needed to ensure maintenance of full creek flow capacity. -3

4. Linkages to Other Programs and Projects (*Stream Maintenance Program* Chapter 6 and Environmental Impact Report Chapter III): City staff requests that the *San Francisquito Creek Bank Stabilization and Revegetation Master Plan* be added to the list of linked programs. The *Master Plan* contains an inventory of existing conditions along the creek and provides planning and design guidelines for bank stabilization and revegetation projects. The *Master Plan* was a collaborative effort of the San Francisquito Creek Joint Powers Authority, including the District. Future maintenance activities along San Francisquito Creek should be compatible with the *Master Plan* recommendations. -4

-5 A discussion of the relationship between the proposed maintenance activities and the San Francisquito Creek Joint Powers Authority (JPA) should be added to Section E. of Chapter III of the environmental impact report. Special focus should be placed on the *Master Plan* and on the stated goals and objectives of the JPA with respect to San Francisquito Creek.

-6 5. Proposed mitigation measures (*Stream Maintenance Program* Chapter 5 and Environmental Impact Report Chapter II, Section D: City staff strongly supports the removal of Giant Reed (*Arundo donax*) as a mitigation measure for the District's proposed maintenance activities and request that some of the removal take place in Palo Alto creeks. The growth and spread of Giant Reed is a problem in San Francisquito Creek and the lower reaches of Matadero and Adobe Creek.

Thank you again for the opportunity to provide input to the District's future stream maintenance activities. I think that it is critical to the District's flood control mission that you have the ability to maintain your facilities on an ongoing basis. Working in concert with the District, the City will continue to support the need for such efforts to the appropriate regulatory agencies. Public Works Department staff will also continue to work cooperatively with the District to provide flood control to the community. If you have any questions or need further information, please contact me at (650) 329-2325 or Joe Teresi of my staff at (650) 329-2129.

Sincerely,

Glenn S. Roberts

Glenn S. Roberts
Director of Public Works

cc: City Council
Frank Benest
Kent Steffens
Michael Jackson
Joe Teresi
John Ballard
Virginia Warheit
Stan Williams, SCVWD
Greg Zlotnick, SCVWD Board of Directors
Cynthia D'Agosta, San Francisquito Creek JPA
Pat Showalter, CRMP

Responses to Comments in City of Palo Alto Letter

PA-01

Comment acknowledged

PA-02 and 03

Sediment removal and vegetation removal that have been done in the past on San Francisquito, Adobe, and Matadero Creeks and as specified by the maintenance guidelines for these facilities are included in the SMP and multi-year permit applications. This includes the sediment removal from the concrete aprons downstream of Highway 101 on both Matadero and Adobe Creeks and for a distance of approximately 500 feet on San Francisquito Creek. In principle, all streams under District jurisdiction, where the types of maintenance described in the SMP would be performed, are included in the program. However, regulatory permitting agencies require information in the application package that help evaluate the probable impact on the public interest. The environmental assessment of those probable impacts is found in Chapter IV of the EIR and is for work projections based on where, historically, maintenance work has been done routinely and where and at what threshold maintenance work is required in the maintenance guidelines. Sediment and vegetation removal in the channel reaches downstream of the points described above were not included in the projected work areas because at this time neither the maintenance guidelines nor the history of work support that inclusion. City staff point out that the need for this maintenance work has been established by the recent findings of the Matadero/Barron Creeks Remediation Project. As part of that project, the maintenance guidelines will be revised to reflect capacity preservation through a routine maintenance program for the redesigned reaches of Matadero Creek below Highway 101. The current schedule for that project will allow maintenance work to occur in these reaches no later than would have been allowed under the SMP permits.

For Adobe Creek, District staff will review the maintenance guidelines for the reach below Highway 101 as requested and revise them as appropriate. As a matter of interest, Appendix B of the SMP provides an introduction and description of engineering-based maintenance guidelines. By coincidence, the maintenance guidelines for Adobe Creek were used in this appendix.

Because neither sediment removal nor vegetation removal has been done routinely and because the maintenance guidelines for San Francisquito Creek below Highway 101 have specified only levee maintenance as a routine activity, this section of the creek is part of the SMP only in the sense of levee and property maintenance. Since routine sediment or vegetation removal has not occurred in these reaches since 1958 by either the District, San Mateo County, or East Palo Alto, the reestablishment of the as-built condition would be a change in program and could be considered as a project separate from the SMP. This would require CEQA compliance as well as the appropriate regulatory permits to remove sediment and vegetation. Upon completion of those steps, the SMP would be updated as above in the case of Matadero Creek. As a member of the San Francisquito Creek Joint Powers Authority, the District has participated in the action plan to restore capacity to the reaches of San Francisquito Creek below Highway 101. The current strategy is to restore capacity through levee raising consistent with the maintenance guidelines. The Clean, Safe Creeks and Natural Flood Protection funding provides planning and design of San Francisquito Creek for the area extending from San Francisco Bay to Searsville Dam. It is the goal of this study to develop a community-supported solution to flooding and to address environmental issues.

See discussion on page 1-4 of the SMP for updating the SMP and for incorporating any revisions to the mitigation program.

PA-04

See responses to JPA-04 and JPA-06.

PA-05

See responses to JPA-07 and JPA-08.

PA-06

The District appreciates your endorsement of the program. Refer to comment JPA-05 in regard to control of giant reed in Palo Alto creeks.

California Regional Water Quality Control Board
Central Coast Region

ston H. Hickox
Secretary for
nvironmental
Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb3
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5411
Phone (805) 549-3147 • FAX (805) 543-0397

Gray Davis
Governor

May 11, 2001

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
FAX: (408) 267-6247

COMMENTS FOR DRAFT ENVIRONMENTAL IMPACT REPORT AND DRAFT STREAM MAINTENANCE PROGRAM, SANTA CLARA VALLEY WATER DISTRICT, SANTA CLARA COUNTY

RWQ-CC

essler:

Thank you for the opportunity to review and comment on your March 28, 2001 Draft Environmental Impact Report (Draft EIR) and Stream Maintenance Program (SMP) Report for the Multi-Year Stream Maintenance Program. From these documents, we understand that this project involves long-term planning for routine stream maintenance activities in Santa Clara County. Maintenance activities for the proposed project include sediment removal, vegetation management, and bank protection.

Central Coast Regional Water Quality Control Board (Regional Board) staff reviewed the Draft EIR and SMP, and offers the following comments:

1. Jurisdiction

-1 Table III-2 of the Draft EIR indicates the Regional Board does not have jurisdiction over upland vegetation management. Activities in upland areas may promote soil erosion, increase sediment loading in runoff, and affect water quality; therefore, activities in upland areas are within Regional Board jurisdiction. Waste Discharge Requirements will include regulation of upland stream maintenance activities, and total maximum daily load (TMDL) documents will include assessment of impacts to impaired surface waters from activities in upland areas.

2. Herbicide Usage

-2 The Regional Board supports the Modified Pajaro River Basin Alternative, which allows for continued vegetation management by hand and mechanical methods. With this alternative, herbicides may only be used in the Pajaro Basin for controlling non-native, invasive plants.

RWQ-CC

-2 (Cont.) The Regional Board does not support herbicide usage for general vegetation management in the Pajaro Basin because it is not protective of beneficial uses, and it causes or threatens to cause a condition of pollution or nuisance.

a. Beneficial Uses

"The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife." (Draft EIR, page IV-D-75.) Our Basin plan lists "wildlife habitat" as a beneficial use for inland surface waters in the Pajaro River Hydrologic Unit. It is the Regional Board's responsibility to protect beneficial uses of surface waters identified in our Basin Plan. Waste Discharge Requirements for this project will protect beneficial uses of surface waters in the Pajaro Basin by allowing only those vegetation management methods that cause the least significant impacts to wildlife habitat.

b. Water Quality

-3 Soil erosion and siltation pose serious threats to water quality. The Pajaro River and Llagas Creek are listed as impaired water bodies due to siltation. Herbicide usage may contribute to this problem by permanently destroying protective vegetative cover in treated channels and upland areas, leaving soil exposed and increasing the potential for erosion. Plant roots help stabilize soil. Herbicides will cause roots to decay, also increasing the potential for erosion. The Draft EIR States: "...Vegetation die-off following herbicide application has the potential to release sediment trapped within the mass of vegetation causing deposition downstream...." Waste Discharge Requirements for this project will not permit vegetation management activities that degrade water quality in impaired water bodies and their tributaries.

c. Other

-4 Protecting wildlife habitat is also consistent with Open Space and Conservation Policies of both Gilroy and Morgan Hill, which seek to "preserve natural resources of Uvas Creek and Llagas Creek riparian communities," and "minimize disruption of streams and riparian systems."

-5 Please summarize wetland and riparian mitigation requirements of the Llagas Creek Watershed Project (1982 EIR/EIS), and discuss how the proposed use of herbicides would affect those mitigation projects.

3. Bank Protection

Regional Board staff disagrees with the methodology used for impact assessment and mitigation for routine bank protection.

-6 a. Bank protection structures have potential to accelerate erosion downstream and instigate new bank instability problems. Since bank protection meets Criterion GEO-

RWQ-CC

1 and Criterion GEO-2, it should be included and addressed under Impact GEO-1 and Impact GEO-2.

-7 b. Impacts from bank protection structures on fluvial geomorphology do not appear to have been considered in SMP Appendix E. Please address how you will mitigate for impacts to fluvial geomorphology from bank protection structures.

-8 c. What criteria will be used to determine whether bank protection structures at a given site include soft-scape or hard-scape?

-9 d. Regional Board staff will require mitigation for temporal and permanent riparian habitat impacts, permanent fluvial geomorphic impacts, and permanent aquatic habitat impacts from bank protection activities.

4. Water Quality Sampling

-10 The Draft EIR and SMP did not include a self-monitoring program. Please submit the proposed Self-Monitoring Program Water Quality Sampling Plan for this project. This document is required as part of a complete Section 401 Water Quality Certification Application, and will be used in developing Waste Discharge Requirements for this project.

The plan should propose a monitoring and sampling program for stream maintenance activities in the Pajaro River Basin in accordance with the objectives and beneficial uses described in our Basin Plan. Include specifications for sampling and analyses, quality assurance and quality control procedures, sample collection frequency, and reporting schedule.

5. Storm Water

-11 Our November 1, 2000 SMP Notice of Preparation comments letter informed you of the Storm Water Construction General Permit (General Permit) requirements and requested you apply for coverage by submitting a Notice of Intent. Our records do not indicate you have applied for coverage under the General Permit. The Draft EIR and SMP did not indicate whether or not the District will apply for coverage under the General Permit. Please address this issue.

6. Impaired Surface Waters

Total maximum daily load (TMDL) allocations will be developed for impaired surface waters in the Pajaro River Basin. TMDL documents will allocate responsibility for constituent loading throughout the watershed. Draft TMDL documents are scheduled for June 2002 for nutrients, and June 2003 for siltation.

-12 During development of the TMDL source assessment and implementation plan, if Regional Board staff find constituent contributions from stream maintenance activities

RWQ-CC

impact beneficial uses or exceed water quality objectives, TMDL documents may require changes in Waste Discharge Requirements and/or 401 Certification conditions. Waste Discharge Requirements for this project will include provisions to allow for modification of the permit in accordance with TMDL implementation plans.

-13 The list of Section 303(d) impaired water bodies within District jurisdiction (Draft EIR, page III-14) should reflect:

- Llagas Creek and Pajaro River should be listed for "siltation," instead of "sediment."
- Llagas Creek should also be listed for "nutrients."

7. Other

-14 Draft EIR page IV-B-57, paragraph 3, refers to "SMP Appendix H" for BMP information, it should have referenced Appendix G.

The Regional Board contact for this project is:

Ms. Kimberly Gonzalez
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401-5411
kgonzale@rb3.swrcb.ca.gov

If you have questions regarding these comments, call **Kimberly Gonzalez at (805) 549-3150**, or Chris Adair at (805) 549-3761.

Sincerely,

for Roger Briggs
Executive Officer

Cc: Dale Bowyer, San Francisco RWQCB, 1515 Clay St, Suite 1400, Oakland, CA 94612
Keith Anderson, Streams for Tomorrow, P.O. Box 1409, San Martin, CA 95046

Task: 121-01
File: Agency: Santa Clara Valley Water District (SCVWD)
CKG: S:\WB\Northern Watershed\Kimberly\Stream Maintenance\DEIR Comments.doc

Responses to Comments in California Regional Water Quality Control Board - Central Coast Region Letter

RWQ-CC-1

Comment noted. The Upland Vegetation Management column on Table III-2 is changed to include the following:

> ~~No.~~ Yes, for mowing, hand removal, and herbicide spraying activities in upland areas that may promote soil erosion, increase sediment loading in runoff, and affect water quality. Total maximum daily load (TMDL) documents will assess impacts to impaired surface waters from these activities. Impaired surface waters include Llagas Creek and the Pajaro River.

RWQ-CC-02

Comment noted. The EIR recognizes that "wildlife habitat" is one of several wildlife and fisheries-related beneficial uses identified within the Central Coast Regional Water Quality Control Plan for the Pajaro River hydrologic unit (please see EIR page III-11). Please see the master response regarding alternatives for a discussion of program changes in the Pajaro Basin that limit herbicide use and better protect wildlife habitat.

RWQ-CC-03

The EIR acknowledges that erosion and siltation can adversely affect water quality (see pages IV-A-24 through 25 and IV-D-4 through 6). The District believes that the BMPs prescribed to minimize these potential impacts are adequate. Please also see the master response regarding alternatives regarding limitations on the use of herbicides in the Pajaro River Basin.

RWQ-CC-04

The policies of the cities of Gilroy and Morgan Hill are included on pages III-33 and III-45 of the EIR. Application of the BMPs under the SMP will assist in minimizing such impacts, and the mitigation program will compensate for the continuation of routine maintenance activities which impact stream resources.

RWQ-CC-05

In 1974, the Soil Conservation Service (now the Natural Resources Conservation Service) stopped construction of the Llagas Creek Project to further evaluate environmental impacts. The results of the restudy indicated that measures to control erosion and restore vegetation in the reaches excavated from 1971 to 1973 would have beneficial environmental effects and could be carried out whether or not the remainder of the project was installed. A Finding of No Significant Impact/Negative Declaration for this part of the work was distributed in October 1981. The Final Environmental Impact Statement/Report for the Llagas Creek Watershed Project dated May 1982 proposed mitigation for impacts associated with construction of the remainder of the project. Mitigation included restoring the riparian resource with vegetative plantings, installing low flow channels and fish ladders, establishing plantings to mitigate visual impacts, and complying with various local and state ordinances for air and water quality. Impacts to wetlands were not identified as a project impact and no mitigation was proposed.

The 1982 EIR/Environmental Impact Statement (EIS) states that the limited use of pesticides will be allowed in the biological mitigation plantings "to control plant disease, insect infestation or weeds that threaten the mitigation plantings or adjacent croplands." Aside from the restrictions on herbicides use in the planting areas, there is no discussion in the 1982 EIR/EIS prohibiting the use of herbicides. Once the trees and shrubs could withstand the competition, weedy plants would no longer be controlled. With respect to wetlands, the document section states that volunteer herbaceous wetland vegetation will be allowed to grow in the channel bottom. Trees that grow in the channel bottom will be removed and shrubs will be pruned to retain design flow capacity. The limited use of herbicides as proposed by the Modified Pajaro River Basin Alternative is consistent with the provisions in the 1982 EIR/EIS in that it will not change the limited use of herbicides in mitigation plantings associated with the Llagas Creek flood control project.

RWQ-CC-06

Impact Geo-1 states that sediment removal in certain locations may increase erosion downstream of the erosion site. The District has been seeking studies to support the assertion that a bank repair will cause downstream bank erosion. Our experience that is in agreement with scientific theories include (1) erosion on the outside of curves where velocities are very high and (2) series of erosion sites on channels due to soil characteristics that encourage erosion: for example, Canoas Creek has silty non-cohesive soils that generally tend to erode.

Impact Geo-2 states that elimination of in-channel vegetation may increase sediment accumulation downstream. The repair of an erosion site provides a reduction in the sediment movement downstream and generally does not reduce vegetation, which is typically non-existent on an eroded bank. The District has shown a strong trend towards increasing the use of biotechnical and vegetated components in its bank protection program.

RWQ-CC-07

On page IV-1 of the EIR, the environmental evaluation concluded that the potential geomorphic impacts are avoided through the maintenance project design process and by application of BMPs. This includes BMP 1.15, *Prevent Erosion Downstream of Bank Protection Sites*, which provides general and specific steps for design of erosion sites. BMP 2.2, *Minimize Stream Access Impacts*, has specific guidance for protecting the stream banks. BMP 2.3, *Minimize Hardscape in Bank Protection Design*, is another BMP included to avoid and minimize geomorphic impacts.

RWQ-CC-08

See response to comment EPA-04.

RWQ-CC-09

The impacts of bank protection are mitigated for in a number of ways: The Bank Protection Impact Assessment Matrix assesses impacts due to bank protection both for aquatic (in-stream) and riparian (stream-side) habitat. The program includes 3:1 mitigation for trees over 6 inch DBH and 4:1 DBH for trees greater than 18 inch DBH. As stated above, the CEQA evaluation finds that the potential geomorphic impacts are avoided through the maintenance project design process and by application of BMPs. Also see response to comment CDFG-06.

RWQ-CC-10

Comment noted. A self-monitoring program and water quality sampling plan will be submitted to the Central Coast Regional Water Quality Control Board.

RWQ-CC-11

Based on a discussion with Ms. Kimberly Gonzalez of the Central Coast RWQCB, this comment applies to the bank protection work of the Stream Maintenance Program. Central Coast RWQCB staff does not consider new bank protection as a part of maintenance of existing structures. The Central Coast RWQCB staff will require coverage under the General Construction Storm Water Permit if the disturbance area from new bank protection is greater than 5 acres.

Based on available historical records from 1986 to 1999, bank protection work in the Pajaro River Basin accounted for approximately 4.3 percent or 4,084 feet of the total work county-wide. The Stream Maintenance Program estimates that approximately 5,250 feet of bank protection will done each year or approximately 230 feet of repair in the Pajaro River Basin (4.3 percent of 5,280 feet). Using a conservative average erosion repair height of 12 feet, the average width of a typical erosion repair job on a 1:1 slope is calculated to be 17 feet.

Using this information, the annual erosion repair area in the Pajaro River Basin is:

230 feet/year X 17 feet = 3,910 square feet/year or 0.09 acre/year

The projected erosion repair area in South County for 10 years is

0.09 acre/year X 10 year = 0.9 acres/year

Since the project total amount of work in the 10-year program is less than 5 acres, it is concluded that the District will not be required to apply for coverage under the General Construction Storm Water Permit.

RWQ-CC-12

The Federal Clean Water Act Total Maximum Daily Loads (TMDLs) for the Pajaro River basin are under development. The TMDL for sediment is to be completed by June 2003 and adopted into the Basin Plan by the RWQCB in June 2005. Early implementation is planned sometime between 2003 and 2005. We anticipate that the TMDLs may change BMPs for maintenance work but not the program description itself.

RWQ-CC-13

The second paragraph of page III-14 of the EIR is revised as follows:

> Impaired waterbodies in Santa Clara County include:
>
> - All San Francisco Bay Segments—mercury, exotic species, PCBs, diazinon, selenium, chlordane, DDT, dieldrin, furans and dioxins
> - South San Francisco Bay—copper, nickel
> - SF Bay urban creeks—diazinon
> - Guadalupe Watershed—mercury
> - San Fransquito Creek—siltation
> - Llagas Creek—siltation, nutrients ~~sediment~~
> - Pajaro River—siltation ~~sediment~~, nutrients, metals, grease, oil and pesticides

RWQ-CC-14

Comment noted. Therefore, the 1st sentence in the 4th paragraph on page IV-B-57 of the EIR is revised as follows:

> The SMP includes an extensive array of BMPs (see SMP Appendix ~~H~~G)…

San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

May 14, 2001
File: 2188.07 (DCB)

Ms. Cindy Roessler, Project Manager
Santa Clara Valley Water District
5750 Alamaden Expressway
San Jose, CA 95118-3686

SUBJECT: Comments on Draft Environmental Impact Report and Application for Water Quality Certification and Report of Waste Discharge for the Multi-Year Stream Maintenance Program of the Santa Clara Valley Water District (District), Santa Clara County

Dear Ms. Roessler:

We have received the Draft Environmental Impact Report (DEIR), Draft Stream Maintenance Program Report, a Joint Aquatic Resources Program Application (JARPA) application for water quality certification, and a report of waste discharge for the District's Multi-Year Stream Maintenance Program (Program). Materials received have included the following:

- A JARPA package, dated February 15, 2001;
- A Report of Waste Discharge (Form 200), dated February 15, 2001;
- The DEIR, including the Draft Program Report dated March 2001; and,
- A fee deposit of $1,000. Once a complete certification application is received, we will advise you regarding the total required application fee, and your deposit shall be applied towards that total.

This letter comments on the DEIR, comments on the Program's permit applications, and includes a request for additional information and clarification needed to render those applications complete.

We commend you, your colleagues, and the District Board for this major effort, resulting in the proposal to achieve a multi-year stream maintenance program that balances flood maintenance needs with stream function and habitat preservation and enhancement. This demonstrated both the District Board and staff's commitment to the Ends Policy, which calls for a balancing of public health and safety and protection of natural resources. This Program and its supporting documents come close to providing the transparent process by which unavoidable impacts of routine maintenance work will be fully and sustainably mitigated in an ongoing manner. It should be noted that this Program was prepared through a collaborative process, and, in addition to the Santa Clara Basin Watershed Management Initiative (SCBWMI) and the Santa Clara Valley Urban Runoff Pollution Prevention Program, is a less adversarial, but highly effective way of doing business that the District is pioneering.

California Environmental Protection Agency

Recycled Paper

The goal of the Program is to obtain permits from the Regional Board, the California Department of Fish and Game, and the U.S. Army Corps of Engineers, in consultation with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, to conduct routine sediment removal, vegetation management, stream bank protection and additional minor maintenance for a ten-year period.

The District has proposed mitigation for the unavoidable recurring temporal impacts associated with the Program's activities on a one-time basis. The proposed mitigation consists primarily of tidal and seasonal wetland creation, invasive exotic plant removal with re-vegetation, and acquisition of land within the watershed with preservation and restoration of associated streams and waterbodies.

Incomplete Application

This letter serves as notice that the application for certification of the Program, though impressive, pioneering and the result of a long and arduous effort is incomplete at this time. The California Water Code (CWC §3856) sets out minimum requirements for a complete application for water quality certification. We have also included information necessary to complete the report of waste discharge.

I. **Avoidance and Minimization of Impacts:** A complete application must describe efforts to avoid and minimize impacts to Waters of the State. This application describes a process by which maintenance decisions in the three Program work areas of sediment removal, vegetation management, and bank protection will be made as the least environmentally damaging practicable alternatives. This is objective 4 of the Program (p. 1-1).

By outlining the process in Chapter 3 of the Draft Program Report, and by reference to the Maintenance Guidelines, the BMPs (Appendix G), associated procedures and the Resource Protection Policies (Chapter 4), and the Bank Protection approach (Appendix E and elsewhere), the District describes the way that it will do what is determined to be necessary, and then do it in a manner that reduces impacts to habitat as much as possible.

RWQ-SF-1

However, some more detail on the decision making process and design process is necessary, particularly for bank protection, and for the manner in which sediment removal and vegetation removal is done, once the need for the activity is identified from the Maintenance Guidelines.

II. **Proposed Mitigation for Impacts to Waters of the State:** After avoidance and minimization are adequately demonstrated, adequate mitigation must be proposed to compensate for unavoidable impacts. The Program would impact 30 acres of tidal wetlands, 116 acres of freshwater wetlands, and 78 acres of riparian vegetation through sediment removal and vegetation management, and an undefined number of miles of stream bank through bank protection, as recurring temporal impacts, over a twenty-year impact estimation time frame. The District proposes to mitigate for these impacts by creating seasonal wetlands. Please provide a current, complete, technically accurate description of the mitigation proposed for the proposed project. The integrity of the mitigation project must not be dependent on construction or completion of any other project.

RWQ-SF-2

This comment letter will now focus on material in the Draft Program Report, which offers the most complete description of the Program, including policies, procedures and Best Management Practices (BMPs). What follows are general comments on the completeness of the application, divided into program process, the three functional areas of the Program, and mitigation. An additional set of comments will be at the end of the letter, that do not fit clearly into the above five categories.

RWQ-SF-3

A. Program Process

The proposal for annual updates of the overall program and of BMPs and other procedures as necessary, through the "Lessons Learned" process is excellent. Please provide more detail on the timing and mechanics of this process. How will it be formalized, who will participate, and how will the annual reporting of activities and mitigation status coincide? There will be a great deal of information to review, particularly in the early years of the program, until the process is running smoothly, and the oversight agencies are more confident in the programs outcomes and require less assurance. Describe how the District plans to prepare, submit, and incorporate comments on annual reports into the Program.

RWQ-SF-4

B. Sediment Removal

In Chapter 4, the discussion of Policy 4 is very good, but leaves out the approach of seeking opportunities to control excess sediment sources on land not owned by the District, by developing outreach to property owners in the watershed and to landowner groups. Some of this will be accomplished through the SCBWMI, in which the District is a major sponsor and participant, but the approach needs to be explicitly described.

While it is certainly true that the District must remove sediment from channels on an annual basis to maintain flood flow capacity, management practices, which can reduce sediment loads, and/or reduce the frequency of costly and environmentally destructive sediment removal should be considered for addition to the Program. If addition of such practices was considered, but no practices were added, a justification should be included. Some of the sources of erosion and sediment which are amenable to such management would include bank stabilization projects, better grazing land management, which the District could encourage through sponsoring ranch plan development and overall land stewardship education, and seeking opportunities to control significant sediment sources such as quarries.

C. Vegetation Management

Vegetation removal from engineered flood control channels is necessary to prevent flooding. While a strong effort is made in current urban flood control design to maintain as much functioning riparian vegetation as possible, with flood flow capacity around either existing or future riparian trees, older designs depended on removal of trees from a reconfigured channel. The District Board has voted in past years to use non-chemical methods of vegetation control, which are more expensive and less convenient, in major watersheds in the Region 3's jurisdiction

-5 to the south, such as the Pajaro and Uvas basins. In Region 2's jurisdiction, on page 2-5, chemical herbicide use is the primary mode of vegetation removal, since mechanical removal yields high rates of regrowth, and herbicide does not. Please describe the relative differences between the Region 3-area vegetation management approach and that employed in our Region, as an alternatives analysis.

-6 The primary herbicides used are Rodeo, with a surfactant additive called R-11, Roundup Pro, and Pendelum. Rodeo is the only herbicide that the District uses that may be applied to plants over water. Please describe the pesticide regulatory status of the use of R-11 over water. Has the District ever done field acute toxicity testing after application of the Rodeo-R-11 standard mixture?

-7 How are Roundup and Pendelum applied to avoid acute toxic runoff impacts to aquatic life? Apparently, both herbicides are applied during the winter rainfall months, with a 20-foot setback from water. Please supply more detail on BMPs of application, particularly with respect to rain forecasts and any other circumstances that may influence transport to water.

-8 Monitoring of water column and sediment should be done on a subset of sites, particularly "worse case" sites, with low water flow, steep banks, little intervening vegetation, to determine if toxicity or the toxic components of the herbicide formulations, such as the surfactants, are present in toxic amounts in the receiving waters, when rain falls soon after application.

-9 What practices are employed to prevent overspray or spray drift onto water? -10 More toxicity characterization may be needed, particularly chronic toxicity testing of herbicide-surfactant mixtures. Staff will assist the District in partnering with other flood control agencies that apply similar herbicides in similar ways, to share the cost of the monitoring described above.

D. Bank Stabilization

-11 In Chapter 2, p. 2-13, the general criteria for bank protection repair projects is spelled out, but more detail is necessary to understand when these criteria are met. Certainly there will always be technical judgment, but a more specific evaluation procedure should be outlined.

In addition to criteria for determining when bank stabilization projects are undertaken, the type of considerations, and analysis leading to particular design methods, from the suite of options that are described in Appendix E, needs to be spelled out in a comprehensive way. We are confident that the District has considerable technical expertise to apply to these issues, and is conversant in the all of the relevant design approaches including the fluvial geo-morphological approaches. Recent design summaries, as case examples, would clarify how bank protection designs are developed, and how the commitment to more bio-technical design has impacted recent years' bank protection projects.

A flow chart or other description of option selection would clarify the process, such as the basic criteria: amount of available working room, stream velocity under certain conditions, soils conditions, channel capacity condition, and other key factors. In addition, describe use of some of the more technical factors outlined in the DEIR. Some of these mentioned include stream type, bankful channel dimension, bed and channel mobility, potential for bed scour, and downstream areas susceptible to erosion. A schematic example of a design analysis, perhaps

-12 from a recent project, would be very helpful in understanding this analysis. In Appendix E, how is OHW determined on a routine basis? This is a key design parameter, and needs to be defined in the document.

-13 We understand the proposal for mitigation credit for some bank protection projects, which may be appropriate in some very particular circumstances, but the current description of this approach contains major pieces that require further review. For instance, it is stated that this mitigation credit is contingent on the habitat status of the reach in which it will be built, including fish presence status. These data should be verified by the appropriate agencies as a part of this approach. A pilot version of this approach may be appropriate, with review prior to full acceptance.

-14 On p. 5-17, it is stated that a protocol is included in Appendix E. for revegetation of stream banks
as mitigation. Exception should be included for bank protection measures that use vegetation as
-15 an integral design component. Also in Appendix E, a rock blanket is described as a bio-technical
bank stabilization method, perhaps in error.

-16 Current fisheries status of streams already exists. Please submit this information with the application.

E. Mitigation

-17 **General Comment** – mitigation must be verified through detailed reporting of progress toward success criteria. In addition, maintenance of mitigation featured must be documented. Monitoring and reporting may be reduced or eliminated, after stability is observed.

-18 **Tidal and Non-Tidal Wetland Creation** - More detail is necessary on the timing for detailed designs and mitigation monitoring plans for the tidal and freshwater wetlands that will be created. A general mitigation-monitoring template should accompany the application, as detailed design may take years. Success criteria for the created wetlands, frequency and length of monitoring, and the typical parameter to be monitored should be presented.

-19 **Giant Reed Removal** – We assume the goal of this mitigation element is effective eradication within District jurisdiction. Please provide mapping of current prevalence, if available, and an estimated schedule for achievement of your goal in this element. A protocol for revegetation, and monitoring and maintenance of revegetated areas is needed.

-20 **Watershed Preservation** – Please include the level of detail for this mitigation element that we obtained verbally at the recent meeting with District staff, including an example acquisition summary, describing the amount of mitigation credit the District would claim as a partner in a collaborative purchase.

-21 **Bank Protection** - The proposal to claim mitigation credit for some types of bank stabilization projects remains controversial, and we await a more detailed proposal, including the status of fisheries within District jurisdiction, that is referred to in the application and DEIR.

-22 In addition, two elements of the Program, reed removal and bank protection, are proposed as mitigation, and would occur in District jurisdiction. The District should explore other restoration and habitat improvement opportunities within District jurisdiction, if these measures can occur without loss of necessary flood flow capacity.

F. Miscellaneous Comments

Specific Comments on Bank Protection Measures (Appendix E)

-23 The bank protection mitigation credit scheme should be proposed as a pilot process.

-24 How will the District internally coordinate to protect planted vegetation from vegetation management?

-25 How will bank protection measure designs be checked to avoid upstream and downstream impacts? Propose a monitoring system for this and other aspects of bank protection projects. **(comment relates to BMP 1.15 also)**

-26 How are #8 and #8a *Bio*-Technical?

Specific Comments on BMPs (Appendix G)

-27 **General comment** – How will the annual report assess and report BMP implementation and success of BMP element implementation, and need for the improvement of BMPs?

-28 1.5 Soil stabilization, i.e., blown–on tackified straw with seed, jute blankets, etc. should be added to the temporary erosion control measures.

-29 1.10 Mercury is the subject of a Total Maximum Daily Load and eventual Waste Load Allocation development process, and a very significant source of mercury is in and up-watershed of District jurisdiction. Formal acknowledgement of the eventual incorporation of this regulatory initiative into the Program should occur.

-30 1.13 How will this be assessed and reported?

-31 1.14 How will this be assessed and reported?

-32 3.6 Why are the listed creeks identified for alternate side sediment removal, and not others?

-33 3.9 (2.)Needs a qualifier like "in a dangerous manner".

-34 3.22 Should add, "Minimize or eliminate potential for toxic herbicide or surfactant runoff to adjacent surface waters, do not apply within X hours or X days of imminent rainfall..."

Additional Comments

-35 Please include the Region 2/ Region 3 boundary on maps.

-36 Vegetation removal is described as necessary for facility inspection. Please elaborate.

-37 It would assist the Board in its review if the District would make available the following three studies/reports:

a. Clark, W. C., Vegetation Cover of the SF Bay Region in the Early Spanish Period, 1959;
b. Smith, Jerry, 1999 unpublished report on steelhead and other fish resources of streams of the west side of SF Bay; and,
c. Annual Report to CDFG on District's Stream Alteration Permit Projects

Our review of the application materials is ongoing. We may request additional clarifying information once your complete application is received.

Please feel free to contact Dale Bowyer or Richard McMurtry of my staff at 510-622-2323 or dcb@rb2.swrcb.ca.gov if you have any questions regarding this letter.

Sincerely,

Bruce Wolfe, Chief
Watershed Management Division

cc: US Army Corps of Engineers, Attn: Molly Martindale
US Fish and Wildlife Service, Attn: Mark Littlefield
Oscar Balaguer, SWRCB-DWQ
California Department of Fish and Game, Yountville, Attn: Margaret Roper
National Marine Fisheries Service, Attn: Maura Eagan
US EPA, Attn: Luisa Valiela
RWQCB No. 3, Attn : Kimberly Gonzales

Responses to Comments in California Regional Water Quality Control Board - San Francisco Bay Region Letter

RWQ-SF-01

For bank protection discussion, refer to the response to comment EPA-04. Specifics on the methods of sediment removal and vegetation management, identifying equipment, disposal and using photographs to illustrate some different sites are included in Chapter II, pages 6-18.

RWQ-SF-02

Chapter 5 of the SMP contains a current and complete description of the proposed mitigation program. Minor revisions have been made with updated information and a MMRP has been added.

RWQ-SF-03

Refer to Chapter 3 of the SMP. Figure 3-1 provides some proposed dates for significant steps in the environmental review protocol and Section C provides more detail on the annual reporting. In addition to the oversight agencies, invitations to attend and/or participate in the lessons learned meetings will be extended to interested individuals, organizations, and regulatory agencies. Preliminarily, we anticipate reporting twice annually to the oversight agencies. In May of each year, the District will report what work is planned for the upcoming construction season. At the end of the rainy season and prior to January 1, the District will report what work was accomplished in the prior construction season. The January report will also include the outcomes of the lessons learned meeting and how the information and assessments were used to update the BMPs, the SMP processes, and the maintenance guidelines. That report will also provide a status on the implementation of the mitigation program. If there are comments on the annual reports, response to those comments will be made to the commenters on some time frame mutually agreed upon during the permitting process. See also response to EPA-12.

RWQ-SF-04

Refer to discussions in Chapter 6, related programs and projects B9, B10, and B11. Last November in the general election, Santa Clara County residents endorsed and enabled funding through a special tax the District's new Clean, Safe Creeks and Natural Flood Protection 15-year plan. This plan is an integral part of the District's flood protection and stream stewardship program. For the first time the District has allocated specifically for environmental protection and restoration. This funding will provide for pollution prevention programs and outreach to detect and manage toxins and sediments that flow into San Francisco and Monterey Bays. A recent example of the District's commitment to such outreach is evidenced by the Land Use Summit at which the District presented a blueprint for improving our watershed to over 200 community leaders, elected officials, planning commisioners, city and county planners. The issue of the impact of local land use decisions on flood protection and water quality in Santa Clara County was the topic of this summit conference. Another example of public outreach is the partnership of the District with local resource conservation districts to develop and implement land treatment and management measures.

The District intends to seek ways to reduce the sediment load to Santa Clara County streams with the local cities and counties and regulatory agencies such as the Regional Water Quality Control Boards. If successful over the long term, the reduced sediment load should also reduce the amount of required routine maintenance. The District would then reassess its SMP, determine if overall impacts are less than those projected, and subsequently determine if the mitigation amounts committed to under the Stream and Watershed Protection Program could be reduced.

RWQ-SF-05

Historically, the primary difference between the vegetation management approaches in Regions 2 (Santa Clara Basin) and 3 (Pajaro River Basin), is that Region 2 has been preventive by using primarily herbicides and Region 3 has been corrective by using mechanical and hand methods (EIR, pages II-12 and -13). The Modified Pajaro River Basin Alternative proposes that herbicides continue to be used in the Santa Clara Basin, whereas vegetation management would be changed in the Pajaro River Basin to allow herbicide use in upland areas and to control nonnative invasive vegetation.

RWQ-SF-06

See master response regarding aquatic herbicides.

RWQ-SF-07

Glyphosate in Roundup, when applied to upland areas, is either absorbed into plant materials or is bound tightly to surrounding soil particles. Pendimethalin in Pendulum remains suspended in the pore spaces between the soil particles and requires rainfall or irrigation to become activated. In surface runoff, small quantities may be transported via soil particles into surface waters. It is unlikely that the quantities of either product would ever reach concentrations above the no observable effect level and much less likely that they would ever reach acute toxicity levels similar to lab results. See also Appendix H in the EIR, response to CDFG-26 and RWQ-SF-34, revised BMP 3.18, *Herbicide use in Aquatic Areas,* and master response regarding aquatic herbicides.

RWQ-SF-08

The District does not routinely monitor herbicide concentrations near applications sites. As part of the permitting process, the District will develop with the RWQ-CC an appropriate screening study capable of demonstrating whether herbicides are reaching their receiving waters in biologically relevant concentrations.

RWQ-SF-09

Only herbicides registered for application directly to water are used in or within 20 feet of any water body. Approximately 95% of all herbicide applications are made away from surface waters. When aquatic registered herbicides are applied adjacent to water, application methods are prescribed to minimize the amount of solution that enters the water, such as applying in close proximity to the target plant and discontinuing work when wind speed has potential to move spray solution off target.

RWQ-SF-10

The herbicides used by the District are some of the most widely used agricultural chemicals in the U.S. They have been subjected to extensive federal and state testing and are the subject of environmental evaluations, as cited above. Current District reliance on the safety of these herbicides as they are applied in Santa Clara County is based on a thorough literature which addresses public health and environmental safety and which includes aquatic testing. See master response regarding aquatic herbicides.

The District could undertake field measurement of herbicide application areas primarily to determine at what concentration they appear in the aquatic environment adjacent to the applications site and whether they are persistent. The purpose of this testing would not be to establish acceptable levels of herbicide residual, rather it would be to determine what level of environmental exposure resulted from District herbicide application practice. The results of testing could be used to modify application practice. As part of the permitting process, the District can develop a testing program with the San Francisco Regional Water Quality Control Board staff.

RWQ-SF-11

See response to comment EPA-04.

RWQ-SF-12

Ordinary high water (OHW) is determined in one of two methods. We may use District-developed hydrology data for a 2.33 year event, field cross-sections and routine engineering calculations. The determination may also be made by field indicators. The OHW mark is typically indicated by physical characteristics such as a clear, natural line, impressed on a the bank, shelving, changes in character of soil, destruction of terrestrial vegetation, the deposition of leaf litter another debris materials and abrupt changes from hydrophytic to upland vegetation on channel banks. Where observable indications were either ambiguous or lacking, areas up or downstream of the site where evidence of OHW was better defined were examined. Elevations were then determined and extrapolated back to the area of interest using elevation contours. Minimum potential OHW elevations are sometimes established by determining the elevations of the lowest contour not located with the low-flow channel.

RWQ-SF-13

We have revised the matrix used for analysis of potential impacts to the environment in response to comments we have received. The matrix also now includes an evaluation of proposed bank protection methods. Fish presence status will be determined by use of the data base on the District's GIS or if not available by a qualified biologist. This information will be included in the annual report to agencies.

RWQ-SF-14

Appendix E includes a protocol for revegetation of streambanks associated with the bank protection program. The protocol is technical guidance for designing and installing vegetation along streams and adjacent lands for both bank protection purposes.

RWQ-SF-15

The District concurs. The drawing and description are corrected in Appendix E of the SMP.

RWQ-SF-16

Please see the EIR pages IV-B-17 through 23 and Figure IV-B-1 for current fisheries status information.

RWQ-SF-17

See response to EPA-12.

RWQ-SF-18

The FEIR includes a MMRP as required for CEQA. Detailed designs and mitigation and monitoring plans for the following projects are under preparation and estimated to be ready on the following dates:

3. Pond A-4 tidal restoration project - **detailed design 5/07; MMRP 5/05**
4. Los Capitancillos freshwater wetland creation - detailed design; 2/02, MMRP 2/02
5. Church Pond freshwater wetland creation - detailed design 7/03; MMRP 2/03

Monitoring frequency, schedule, methods and success criteria will be provided in the detailed mitigation and monitoring plan developed for each of these sites. It is appropriate to develop monitoring techniques after the details of the design are determined.

RWQ-SF-19

As discussed on SMP page 5-14 (Control of Giant Reed), the goal of the mitigation element is removal and ongoing control of giant reed on 125 acres on creeks within District watersheds. This will result in complete eradication in some watersheds but is not expected to remove all giant reed within the county. See the MMRP for a preliminary map of giant reed outbreaks and schedule for this mitigation element. See response to FWS-02 regarding revegetation.

RWQ-SF-20

The MMRP contains these details on the Stream and Watershed Protection program.

RWQ-SF-21

We have revised the Erosion Repair Impact Assessment matrix to help clarify the impact of a particular erosion repair. The matrix was designed to be very conservative. For example, if there is high quality riparian habitat surrounding a site, an erosion repair that incorporates biotechnical components is considered neutral in impact or benefit. The matrix also now includes an evaluation of the proposed methods of repair. In addition, mitigation is included in the program for all impervious hardscape and rock. See also response to comment CDFG-06 . Please reference IV-B-17, Fisheries and the Aquatic Environment, 1) Existing Fish Habitat and Fisheries for detailed information on the status of fisheries in the District jurisdiction.

RWQ-SF-22

See responses to comments CDFG-31 and MP-03.

RWQ-SF-23

The program proposes detailed annual reporting, annual site visits and annual lessons learned meetings such that the regulatory agencies preserve oversight and guidance on this aspect of the program. Initiating a pilot process would serve to make a complex program even more complicated with no added benefit.

RWQ-SF-24

The vegetated sites are offered protection by a number of methods. Erosion sites are on a layer of the District's GIS to provide an accessible inventory when planning and researching vegetation management. The annual vegetation management work orders will be updated each year to reflect the erosion repair sites. Because the same unit is responsible for installing the vegetation associated with bank protection and for managing vegetation, the unit is well aware of the work. In areas where there is maintenance activities by others, temporary fencing and signage may be used.

RWQ-SF-25

There are a number of key measures to track the impact of the bank protection measures. First, the routine annual inspection of the creeks in the District's jurisdiction includes an upstream and downstream evaluation of erosion sites. Second, the erosion site is recorded on the District's GIS. This is a permanent record of the erosion work and allows an straightforward method of monitoring additional work in the area. Third, the annual field review by regulatory agencies allows agency review of changes within the erosion repair vicinity.

RWQ-SF-26

The District concurs. The titles of the drawings are corrected to remove the term Bio-Technical.

RWQ-SF-27

The District will report on BMP implementation and modification as part of the annual report.

The following sentence is added to the 4th paragraph of page 3-4 and to the 5th paragraph of page 2 of Appendix G of the SMP.

> The "lessons learned" meeting will include BMPs as a specific topic of discussion on the agenda. The annual report will summarize that discussion and any resulting modifications to BMPs.

See also response to comment EPA-12.

RWQ-SF-28

See revised BMP 1.5, *Erosion and Sediment Control Measures.*

RWQ-SF-29

Refer to discussion beginning on page IV-D-1 of the EIR for the water quality setting. One outcome of the Clean, Safe Creeks and Natural Flood Protection Plan is the improvement of impaired water bodies. The District will develop and implement a management plan to support the Regional Water Quality Control Board and Environmental Protection Agency regulations in reducing pollutants, such as mercury, in our waterways. The District is negotiating a consultant agreement to prepare a TMDL program for mercury. The scope of the study will examine three types of loads, point, non-point, and background. Upon completion of the study, applicable sections of the regulatory initiative will be incorporated into the SMP. Under the SMP, the District will continue to test and quantify the amount of pollutants which sediment removal maintenance activities are removing from streams of Santa Clara County.

RWQ-SF-30

See response to WW-45. The assessment will be made through inspections of the channels after the rainy season and a comparison with as-built construction drawings. Reporting requirements are likely to be negotiated with the resource agencies during the permitting process. The District's preference at this time is that reporting to the agencies and interested parties can occur at the annual "lessons learned" meeting. A summary of that discussion will be provided to participants/attendees.

RWQ-SF-31

The assessment will be made by conducting cursory topographic surveys to determine whether or not aggradation is occurring in the channel where herbicides will be selectively applied. If significant aggradation is occurring in a stream section that normally would be a transport zone, a causal analysis will be made to determine what is causing the sedimentation. Significance criteria would be sediment deposits creating a braided channel or flood conveyance area reduced by 25% or greater. If vegetation has been found to be the cause of the trapped sediments, then the techniques described in BMP 1.14, *Minimize Sediment Transport Downstream from In-channel Herbicide Sites*, will be applied. If aggradation is occurring in a depositional zone, it is unlikely that herbicide applications would trigger a subsequent release of sediment. Other than monitoring stream conditions during normal inspections, no additional actions are anticipated. If the inspections uncover stream degradation directly attributable to the vegetation management activities, BMP1.1.3, *Prevent Scour Downstream of Sediment Removal*, will be revised to reflect new techniques to address that degradation. As stated in the response to RWQ-SF-30, the "lessons learned" meeting is the vehicle of choice for reporting these outcomes and revisions.

RWQ-SF-32

See response to WW-45. Creeks are not listed when the sediment removal operations are normally achievable from one side of the creek with conventional excavation equipment. These are channels with a bottom width of about twenty feet or less. To conduct sediment removal from half the bottom on these channels would be costly from a mobilization and operational standpoint. Doubling the operation would also be more disruptive to adjoining communities due to the greater frequency of noise and construction-related impacts. Lastly, on small channels, removing sediment from one side only creates instabilities under lower flow conditions. These instabilities can result in erosion of the bank along the side where sediment was removed due to the rougher condition of the sediment and vegetation that would remain in the other half of the channel bottom. The list will be revised periodically to include only those channels where the sediment removal requires access from both sides and the maintenance guidelines allow this without compromising capacity.

RWQ-SF-33

Reference to threatening a structure earlier in the BMP incorporates this concept.

RWQ-SF-34

See new BMP 3.22, *Herbicide Use in Upland Areas*, which addresses use of herbicides in upland areas and rainfall. See also response to CDFG-26.

RWQ-SF-35

Most maps in the EIR show the boundaries of the Santa Clara Basin and the Pajaro River Basin. As described on page III-10 of the EIR, these boundaries are equivalent to the boundaries of RWQCB Region 2 (San Francisco Bay Region) and Region 3 (Central Coast Region), respectively.

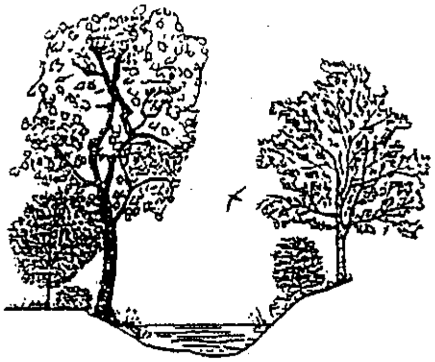
RWQ-SF-36

Vegetation management is necessary for facility inspection. For example, specific types of vegetation on levee slopes can impede inspection of the structural integrity of the levee system. Additionally, tall woody vegetation on levee slopes can visually impair inspection during high flows, when access is limited to levee maintenance roads.

RWQ-SF-37

Copies of the Clark report, Smith report, and copies of the Streambed Alteration Agreement reports to CDFG for the past year will be sent to the RWQCB office.

SANTA CLARA COUNTY
STREAMS FOR TOMORROW
Post Office Box 1409
San Martin, California 95046



May 14, 2001

HAND DELIVERED

Ms. Cindy Roessler
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Ms. Roessler:

Multi-Year Stream Maintenance Program
Draft Environmental Impact Report

SFT

We have the following comments on the Stream Maintenance Program (SMP) Draft Environmental Impact Report (DEIR) for your consideration:

-1 1. Table V-3, Impact Bio-5: Table information for the Preferred Project (column 1) should be corrected to read "Significant and Unavoidable" to reflect the correct determination as found in the text on pages IV-B-71 through 75.

-2 2. Page IV-B-101, paragraph 3: Hardscape bank protection at High Quality stream sites is not covered by the SMP (Draft SMP, Appendix E). Therefore, the final sentence in this paragraph has no application to the SMP and should be deleted. Also, reference to a 2:1 mitigation ratio is inappropriate because mitigation requirements will be determined on a case-by-case, individual CEQA assessment basis for hardscape proposals at High Quality sites.

-3 3. Page II-23: Item #3 identifies that initial removal of in-channel trees in lower Llagas Creek is outside the scope of routine maintenance, except that removal of trees less than 2 inches dbh will continue as routine maintenance. For purpose of clarification, the statement should be expanded to identify whether sediment removal and wetland vegetation control activities in this reach which do not involve impacting trees larger than 2 inches dbh are activities included or excluded in the SMP.

-4 4. Table II-4: A distinction between "Channel" and "Upland" work categories is needed because both categories are in-channel work activities. Definitions should be provided in Table footnotes.

-5 5. Table II-4: An explanation should be added that annual use totals for upland herbicide use exceed extent of maintenance totals because annual use calculations may include multiple herbicide treatments.

6. Page IV-B-66, Freshwater Wetlands: The DEIR states: "In the Pajaro River Basin, vegetation management is projected to occur on an additional 10 miles of streams where vegetation management has not been undertaken on a regular basis in the past, which would affect 4 acres of freshwater wetlands." Since this is an expansion of the existing

FT

-6 routine maintenance program, the Final EIR should identify the streams and approximate stream reaches (by station limits) that constitute this additional 10 miles of new maintenance work. In addition, the 4 acres of new wetland impact area also should be identified by stream reach designations and classified as to acreage of herbicide/sediment overlap area (which we believe is 2.3 acres) and acreage of herbicide only area (which we believe is 1.7 acres).

7. Page IV-B-75 to 76, Impact Bio-6: This impact assessment represents the long-awaited project-level CEQA analysis of the proposed use of herbicides to control vegetation in Pajaro River Basin streams. Although the analysis is surprisingly superficial and incomplete, it nevertheless correctly identifies three distinct types of adverse impacts and correctly concludes that resuming herbicide use in the Pajaro River Basin to control wetland and riparian vegetation would cause a significant and unavoidable adverse cumulative impact to wildlife habitats and resources.

-7 Clarification is needed as to whether herbicide use would occur on the 19 acres of wetland vegetation area impacted by sediment removal in the intervening years between sediment removal events. If such use would occur, the actual wetland and riparian area subject to herbicide use in South County would total 71 acres [19 acres of wetland herbicide/sediment overlap area, 6 acres of wetland herbicide only area, and 46 acres of riparian herbicide area] rather than the stated 57 acres. The 57 acre figure implies that only 5 acres of the 19 acres of vegetation impacted by sediment removal will be treated with herbicides in the intervening years between sediment removal events. We seek clarification because it seems logical that the District would use herbicides to control vegetation at the sediment removal sites in the years between dredging events, as described on page II-31. Please provide clarification in the Final EIR as to the total acreage that will be impacted by the proposed change in wetland and riparian vegetation control methods from existing manual methods to herbicide use in South County. We believe the total is 71 acres, not 57 acres.

-8 8. Page IV-B-75 to 76, Impact Bio-6: The analysis of the effects of resuming herbicide use in Pajaro River Basin streams appears to focus on the impacts to wetland and riparian vegetation (and associated wildlife functions and values). Resumption of herbicide use also would impact 157 acres of in-channel upland vegetation. This vegetation is currently controlled by mowing, discing and manual methods. The Final EIR must include specific assessment of the probable environmental impacts of changing the method of upland vegetation control from current manual and mechanical methods to proposed herbicide use.

-9 9. Page V-11, Modified Pajaro River Basin Alternative: The statement that "Herbicides will be used in adjacent upland areas in the Pajaro River Basin" is interpreted as referring to the "Upland Herbicide" designation in Table II-4, constituting 157 acres of upland, in-channel treatment area. The Alternative description should be revised to clarify this point by stating: Herbicides will be used on 157 acres of upland in-channel areas in the Pajaro River Basin.

10. Page V-11, Modified Pajaro River Basin Alternative: The description of impacts to stream vegetation for this Alternative should identify the **Program-level impact reductions** that would accrue from implementing this Alternative. This is important information when comparing impacts and costs between this Alternative and the Preferred Project.

5FT

An additional 2 acres of freshwater wetland impact and 1 acre of riparian vegetation impact have been added to the Program-level impact totals (as summarized in Table IV-B-7) to reflect efficiency of herbicide treatment in the Pajaro River Basin (see page IV-B-75). However, this "efficiency factor" would not apply to the Modified Pajaro River Basin Alternative because herbicides would not be used to control wetland and riparian vegetation under this Alternative. Therefore, Program-level impacts would be reduced by 2 acres for wetland impacts [reduced from 116 to 114 acres] and 1 acre for riparian impacts [reduced from 78 to 77 acres]; and there would be a corresponding reduction in the SMP Compensatory Mitigation Program. This correction/clarification is needed in the Final EIR. -10

-11 11. Page V-11, Modified Pajaro River Basin Alternative: With the exception of Program-level impact reductions discussed in Comment Number 10 above, it is our understanding that the salient difference between this Alternative and the Preferred Project is that 57 acres of wetland and riparian vegetation controlled by herbicide use in the Preferred Project (page IV-B-75) would instead be controlled by non-herbicide methods in the Modified Pajaro River Basin Alternative and level of service remains the same. The Alternative description should be revised for clarification to explicitly and quantitatively state this difference.

-12 12. Table V-4: The cost difference between the Preferred Project and the Modified Pajaro River Basin Alternative for South County vegetation management is approximately $ 2 million per year. This implies that the difference between low-cost herbicide and higher-cost manual methods of controlling 57 acres of wetland and riparian vegetation is about $ 2 million per year, or $ 35,000 per acre. This cost estimate for manual control methods appears exceedingly high and does not reconcile with documented District expenditure data for this type of work. Cost estimates should be revisited. The Final EIR should identify the method of cost calculation, sources of cost data, and the assumptions used in calculating the comparative cost estimates in Table V-4. Sufficient information must be provided to allow the public and decisionmakers to understand and verify the cost comparisons of the Alternatives. A lower cost estimate for the Modified Pajaro River Basin Alternative would add substantial support for designating this Alternative as the new Preferred Project in the Final EIR (see Recommendations at end of this letter).

-13 13. Table S-1, IV-D Public Safety: The summary table of impacts and mitigations fails to include the impact and mitigation measure addressing exposure of areas with mercury concentrations above thresholds. For mitigation, the District, in conjunction with the RWQCB, will develop and implement a testing program; and soils with a mercury concentration exceeding 20 mg/kg will be removed and disposed of in a Class I landfill (see page IV-D-17). For consistency in EIR format and information presentation, this impact requires formal designation on page IV-D-17, such as "Impact Haz-1: Exposure of high mercury concentrations". Also, this impact and associated mitigation measures must be added to Table S-1 at IV-D (and included in the SMP Mitigation and Monitoring Plan).

-14 14. The DEIR identifies that 36 acres of freshwater wetlands and 78 acres of riparian vegetation will be impacted by the "vegetation management" component of the SMP (Table IV-B-7). The only information provided that identifies the location of these impact areas is SMP Report maps and DEIR Figure II-3. Although specific stream reach station data is provided in reference reports identifying the location of vegetation impact areas for the sediment removal component of the SMP, equivalent reach-specific summary data is not provided for the vegetation management component. This is a significant omission.

FT

Such reach-specific location information should be provided in the Final EIR (by appendix or reference reports) to facilitate the public's identification of impact area locations and allow the public to verify the District's SMP vegetation management impact acreage calculations. Although we requested this reach-specific summary information following the Stakeholder process, and again in our October 30, 2000 letter of response to the SMP Draft EIR Notice of Preparation, and again during the comment period for the DEIR, this information has not yet been made available for public review. The Final EIR must correct this omission.

-15 15. The Final EIR should determine if there are differences in magnitude or type of impacts when comparing SMP activities in constructed flood control channels with the same SMP activities in natural streams. If there are differences in impacts when comparing the same work activities in the two different channel types, the Final EIR should assess the differences and determine if they are significant and require mitigation.

16. Page VI-4, Impacts From Proposed Mitigation Projects: The DEIR states: "There are potential cumulative environmental impacts of the mitigation program which will be addressed as part of the Mitigation and Monitoring Program to be prepared prior to completion of the Final EIR or under specific CEQA documents to be prepared for certain mitigation projects." We concur with the second part of this statement that a programmatic environmental impact report may defer identification, analysis and mitigation of the potential cumulative impacts of subsequent program elements to the future CEQA assessments of these same individual program elements. **However, known impacts cannot legally be omitted from a Draft EIR and subsequently addressed in the Final EIR's Mitigation and Monitoring Program (MMP).** Such a circumstance would be an unlawful deferral of impact identification, assessment and mitigation, and an unlawful use of a MMP. In addition, such an approach would violate the full disclosure mandate of CEQA. Identification of new impacts and/or new mitigations after close of the DEIR public review period (such as in a MMP) will trigger CEQA requirements for recirculation of the document for public review of new information.

-16 Known or reasonably foreseeable potential cumulative impacts of the SMP mitigation program should have been addressed in the DEIR. The DEIR statement quoted above now generates major concerns about the adequacy and legality of the DEIR's assessment of mitigation program cumulative impacts.

17. Page VI-4, Impacts from Proposed Mitigation Projects: The statement that "All environmental effects are expected to be resolved, therefore, no cumulative effects along with the SMP work activities will occur" appears to be contradicted by the previous statement in the same paragraph that "There are potential cumulative environmental impacts of the mitigation program ..." yet to be identified and addressed. The issue of possible cumulative impacts from proposed mitigation projects has not been resolved. **The DEIR does not support a determination of no cumulative effects.** -17 Perhaps this paragraph should be revised to simply state that any direct and cumulative impacts that may be identified for proposed SMP mitigation projects will be fully addressed and mitigated in the individual project CEQA documents to be tiered from this programmatic EIR.

The individual mitigation project discussions on pages VI-4 through 10 identify numerous potential impacts and repeatedly state that other potential impacts are not known at this

SFT

stage of project description. Therefore, these discussions do **not** support a conclusion that "no cumulative effects along with the SMP work activities will occur." Such a conclusion is speculative at this stage of mitigation program definition and should not be included in the Final EIR. As a programmatic EIR, the Final EIR should simply state that any direct and cumulative impacts identified for SMP mitigation projects will be fully addressed and mitigated in the specific CEQA documents that will be prepared for all mitigation projects, as explicitly stated on page II-32. A claim that there are no cumulative effects is not supported and will be challenged.

18. Page VI-6: The discussions of the Church Pond and Los Capitancillos wetland
mitigation projects contain errors of fact and should be revised. For example: (a) The
statement under Church Pond Project that the subject reach of Llagas Creek "has limited
-18 potential to be a migratory corridor for steelhead trout" is erroneous. The reach has high
importance as the only migratory corridor for steelhead access to the spawning and rearing
habitat of the watershed because all such habitat is located upstream from the project reach;
-19 (b) another fish ladder on Llagas Creek will contribute to cumulative impacts to fish passage
because there are already 14 fishways on the stream below the project reach which
collectively adversely impact steelhead access to the project reach and upstream habitat;
-20 (c) pursuant to the Guadalupe Creek Restoration Project certified Final EIR, the Los
Capitancillos Project will not include an overflow structure nor allow water discharge to
Guadalupe Creek; etc.

-21 19. Page VI-11: The statement that "there is no cumulative effect when combined with these much smaller projects" should be corrected to state that the three identified significant and unavoidable program-level cumulative environmental impacts (Impact Bio-4, 5 and 6) continue to occur **and are incrementally significant** when SMP activities are combined with other activities affecting District channels. This is particularly true considering the large number of non-District projects impacting stream channels and stream resources that are proposed and implemented each year as discussed on pages II-32 to 33.

-22 20. The Final EIR should identify the threshold beyond which additional maintenance work in excess of the projected quantity and rate of work described and evaluated in the Program EIR would constitute significant environmental effects substantially different from that covered by the Program EIR and thus trigger the need for additional CEQA review. Acreage of impacts, and thus magnitude of impacts, can increase as unplanned work areas are added to the SMP in future years. The Final EIR should identify the criteria the District will use to make determinations as to whether new work would cause a substantial increase in impacts beyond that addressed in the EIR and consequently trigger need for additional CEQA assessment of impacts and mitigation. The Final EIR should identify and discuss application of this threshold of significance criteria.

-23 21. Page II-18: The description of herbicide use in South County notes that herbicide use is substantially excluded in the federally sponsored Lower Llagas Creek Flood Control Project (and amendment of maintenance documents will be required in order to implement proposed herbicide use). It is not clear from the statements on page II-18 and pages II-22 and 23, whether herbicide use is being proposed for wetland vegetation control in Project reaches 1 and 2, or whether such an activity would be defined as outside the scope of routine maintenance. This needs clarification because Reaches 1 and 2 provide 21.5 acres and 24.5 acres, respectively, of Project wetland mitigation. Periodic herbicide treatments are generally incompatible with sustaining and protecting wetland mitigation sites.

FT

-24 22. Regarding operation and maintenance requirements for Lower Llagas Creek Flood Control Project (Project) stream channels (both mainstem and tributaries), the Project's 1982 Final EIS/EIR states on page 56: "Volunteer herbaceous wetland vegetation will be allowed to grow in the channel bottoms." It is our understanding that the Project channels were designed and constructed with a hydraulic coefficient of channel roughness to allow establishment and perpetuation of a reasonable amount of herbaceous wetland vegetation on channel bottoms. The Project's Biological Mitigation Plan Summary states on page C-2: "Herbaceous wetland vegetation will be allowed to grow in channel bottoms to the extent that it does not interfere with flood flows."

The District's current cut-and-remove method of vegetation control reconciles well with the stated Project objective of allowing wetland vegetation "to grow" in Project channel bottoms to the extent it does not interfere with designed flood flow capacity. The proposed use of herbicides to kill in-channel herbaceous wetland vegetation appears to be contrary to the Project's adopted environmental protection goals and objectives. The Final EIR must provide clarity on this apparent conflict. This is not simply an issue of amending maintenance documents. Assurances must be provided in the Final EIR that the District's proposed SMP will respect and perpetuate the functions and values of the PL-566 Project wetland and riparian mitigation features, and will perpetuate a reasonable growth of herbaceous wetland vegetation on channel bottoms as originally intended by Project design.

We note that adoption of the Modified Pajaro River Basin Alternative would be consistent with perpetuating the PL-566 Project wetland protections.

23. Although the SMP will impact 116 acres of freshwater wetlands, only 14 acres of freshwater wetland creation is proposed as direct in-kind compensatory mitigation (Table II-7). This computes to a mitigation ratio of only 0.12:1 for wetland creation. The Draft SMP Report states that the District will continue searching for additional sites. For purpose of full disclosure and to respond to the request of the regulatory agencies that all potential mitigation sites be identified in the EIR (Draft SMP Report, page 5-23), the Final EIR should include recognition that the District is investigating the feasibility of additional in-kind freshwater wetland compensatory mitigation at (1) the Coyote Valley Research Park Regional Flood Protection Facility in south San Jose; and (2) lands of the South County Regional Wastewater Authority in Gilroy. -25

-26 24. California Wetlands Conservation Policy (Executive Order W-59-93): The goals of this Policy include ensuring "no overall loss" and achieving a "... long-term net gain in the quantity, quality, and permanence of wetland acreage and values..." Wildlife habitat is an important value and function of wetlands. In assessing potential environmental impacts, CEQA requires that the lead agency determine if the project will conflict with applicable policies such as the California Wetlands Conservation Policy. Although the DEIR describes the Policy (page III-11), the discussion of SMP consistency (page III-15) is deficient. It fails to include the fact that resumption of herbicide use in South County will adversely impact the quantity, quality and values of 57 acres of South County wetlands and this impact has been determined by the District to be Significant and Unavoidable for the Preferred Project (Impact Bio-6). The consistency analysis is deficient and erroneous. The Final EIR must provide a proper and complete consistency analysis. The Preferred Project conflicts with the Policy due to Impact Bio-6. This conflict must be disclosed in the corrected Final EIR.

SFT

We note that adoption of the Modified Pajaro River Basin Alternative would be consistent with the California Wetlands Conservation Policy in that Impact Bio-6 would be avoided.

-27 25. The Water Quality Control Plan for the Central Coastal Basin (Basin Plan) designates existing and anticipated beneficial uses of waters in the Pajaro River drainage. "Wildlife Habitat" is designated as a beneficial use for the Pajaro River Basin streams included in the proposed SMP. Because the Preferred Project's herbicide use component to control streambed vegetation will cause a significant and unavoidable adverse impact to wildlife habitat and resources, the Preferred Project fails to provide beneficial use protections as required by the Basin Plan and the incorporated Non-Degradation Policy of the State Water Resources Control Board. The Preferred Project is not consistent with the beneficial use protections found in the Basin Plan. The DEIR's consistency analysis fails to identify this non-compliance (page III-15). This deficiency requires correction in the Final EIR.

We note that adoption of the Modified Pajaro River Basin Alternative would be consistent with the Basin Plan and Non-Degradation Policy in that Impact Bio-6 would be avoided.

-28 26. Proposed SMP herbicide use policy: The proposed use of herbicides to control wetland and riparian vegetation in the Pajaro River Basin will result in a significant and unavoidable adverse environmental impact (Impact Bio-6). This impact includes the degradation of at least 57 acres of in-channel wildlife habitat with associated detrimental impacts to wildlife resources. This deleterious consequence of proposed herbicide use appears to be in direct conflict with the SMP's proposed policy on "Use and Management of Herbicides", Policy 11 (Draft SMP Report, page 4-16), which states: "The District's use of herbicides will be consistent with environmental goals, including protection, preservation, and restoration. *Herbicides will be used such that negative effects to the environment are avoided or minimized.*" (emphasis added).

SMP policies have been developed by the District "... to ensure that resources are protected to the furthest extent feasible during routine stream maintenance projects." (Draft SMP Report, page 4-1). The proposed SMP herbicide use policy fails to ensure that South County wildlife habitats and wildlife resources are "protected to the furthest extent feasible during routine stream maintenance projects." Feasible alternatives to herbicide use for controlling wetland and riparian vegetation in South County are available to the District, alternatives that would preclude Impact Bio-6 and ensure that wildlife habitats and resources are protected to the furthest extent feasible as directed by Policy 11..

The herbicide use Policy fails to avoid or minimize the significant adverse impact of proposed herbicide use in South County (Impact Bio-6) because the Policy apparently was ignored when formulating the Preferred Project. In reference to the Preferred Project, the Policy fails to provide its intended environmental protections and fails to support the District's Ends Policies (which is a basic objective of SMP policies). The inclusion of herbicide use in the Preferred Project to control South County wetland and riparian vegetation appears to be for purposes and reasons that override the application, intent and benefits of Policy 11. Considerations other than Policy 11 appear to govern.

The Final EIR must address this conflict and explain the specific considerations that cause the District to override and reject application of its own proposed SMP herbicide use Policy

SFT

in reference to the Preferred Project's herbicide use in South County and the resulting significant and unavoidable environmental impact (Impact Bio-6).

We note that adoption of the Modified Pajaro River Basin Alternative would be consistent with the proposed SMP herbicide use Policy 11, and thus also would support the District's Ends Policies.

27. The environmental baseline for assessing SMP vegetation management impacts in South County is the current environmental setting within which non-herbicide methods are used to control wetland and riparian in-channel vegetation (this differs from the North County baseline which includes herbicide use). These non-herbicide methods allow for substantial retention of vegetation which serves as valuable wildlife habitat, a **"beneficial effect"** of the current mode of vegetation management (page V-11). Resuming herbicide use would eliminate the existing beneficial effect of non-herbicide methods and cause a significant and unavoidable impact (Impact Bio-6).

-29 We believe the current baseline mode of operation is the environmentally superior method of controlling wetland and riparian vegetation in South County. If the District decides to continue this non-herbicide mode of operation, such as by adopting the Modified Pajaro River Basin Alternative, we believe the District should adjust the Program-level vegetation management impact calculations downward for both wetland and riparian impacts *to reflect the fact that current non-herbicide methods are environmentally superior to the proposed herbicide methods*. If non-herbicide methods are selected, we believe Pajaro River Basin program-level impacts should be reduced by 50 % to provide "credit" for selecting environmentally sensitive methods of vegetation control. In such a circumstance, we advocate that Pajaro River Basin vegetation management impacts for wetlands be reduced from 6 to 3 acres, and riparian impacts be reduced from 46 to 23 acres, to reflect this "credit." The SMP Compensatory Mitigation Program would be reduced an equivalent amount (with substantial cost reduction).

These substantial program impact and compensatory mitigation reductions would be associated with and included in the descriptions of those SMP alternatives which do not include resumption of herbicide use to control streambed vegetation in South County, such as the Modified Pajaro River Basin Alternative. We recommend the District employ this "credit" approach in the Final EIR.

28. For the annual stream maintenance projects, such as the 2000 Stream Maintenance Project, the District has employed a fishery and aquatic resources protection BMP that avoids or minimizes adverse impacts to steelhead trout by limiting work in steelhead streams to the low-flow months outside the migration and spawning seasons. For example, Year 2000 Project BMP No. 17 states: "Work within anadromous salmonid streams is generally limited to the period of July 1 to October 15". (Year 2000 Project Final MND, page 2-20).

The proposed SMP BMP No. 3.10 (Draft SMP Report, Appendix G, page 15) **makes two significant and adverse changes** to this established District impact avoidance and minimization BMP: (1) the general period of work in steelhead streams is extended to include July 1 to December 15; and (2) the work restriction is limited in application only to

SFT

"the use of heavy equipment in the channel". These two changes constitute a substantial weakening of the impact avoidance and minimization benefits of the BMP.

-30 The period of October 15 to December 15 is the start of the wet season. Fall storm events cause streamflow increases and pulses and water temperature changes which, in turn, stimulate fall steelhead smolt migration events. In addition, ongoing work in stream channels during fall storms would be the source of siltation, contaminants and other adverse water quality impacts to project streams with concomitant impacts to stream biological resources. Applying the BMP only to "the use of heavy equipment in the channels" would allow SMP work in the channels at any time of the year, including during steelhead migration and spawning, as long as "heavy equipment" was not needed "in the channel" to accomplish the work. To achieve the impact avoidance and minimization intent of the original BMP, the "heavy equipment" qualification must be deleted.

Proposed BMP No. 3.10 must be corrected to reflect the impact avoidance intent of the original BMP, as developed in consultation with agencies and the public during the process of defining and approving past annual stream maintenance projects. **For protection of a listed species,** BMP No. 3-10 should state: **"Work within steelhead streams is generally limited to the period of July 1 to October 15".**

RECOMMENDATIONS:

The Final EIR should reflect the corrections and changes advocated in the above comments.

-31 The Final EIR should identify the "Modified Pajaro River Basin Alternative" as the new Preferred Project. We make this recommendation because this Alternative -

- provides the same level of service as the DEIR Preferred Project;
- avoids the Significant and Unavoidable cumulative impact of the DEIR Preferred Project to South County wildlife habitats and resources due to herbicide use (Impact Bio-6);
- allows resumption of herbicide use in South County streams for exotic plant control;
- allows resumption of herbicide use in South County streams for in-channel upland vegetation management;
- fully complies with SMP Policy 11 on "Use and Management of Herbicides" (the DEIR Preferred Project does not);
- fully supports the District's Ends Policies (the DEIR Preferred Project does not);
- conforms with and implements the environmental protections of the District's Comprehensive Flood Protection and Stream Stewardship Program (the DEIR Preferred Project does not);

SFT

- sustains the vegetation protective measures, mitigations and project design intents of the Lower Llagas Creek Flood Control Project (the DEIR Preferred Project does not);
- reduces SMP program-level vegetation impacts and compensatory mitigation obligations by 3 acres due to elimination of the "herbicide efficiency" factor (the DEIR Preferred Project does not);
- offers the opportunity to employ "credits" for using non-herbicide methods of controlling wetland and riparian vegetation to substantially reduce SMP Program-level impacts and associated compensatory mitigation program obligations and costs (the DEIR Preferred Project does not);
- conforms with and implements the guidelines of the California Wetlands Conservation Policy (the DEIR Preferred Project does not);
- complies with the Central Coast Regional Water Quality Control Board's Basin Plan beneficial use protections (the DEIR Preferred Project does not).

-32 Thank you for the opportunity to comment on the subject Draft Environmental Impact Report. Please send us a copy of the Responses to Comments and Final EIR. Also, we would appreciate receiving copies of the draft CEQA Findings and the draft Mitigation and Monitoring Program (MMP) documents prior to the Final EIR certification hearing.

If you have questions about any of our comments and recommendations, please contact me at the letterhead address or telephone number (408) 683-4330 (voice and fax).

Sincerely,

Keith R. Anderson

Keith R. Anderson
Environmental Advocate

cc: Interested Parties

Responses to Comments in Santa Clara County Streams For Tomorrow Letter

SFT-01

See revised table V-3 in list of revisions to EIR. With additional restrictions on the use of hardscape and the provision of mitigation, the cumulative impact of bank protection is no longer considered significant.

SFT-02

Sentence on p. IV-B-101 of the EIR is deleted:

> ~~If site constraints are such that methods incorporating fishery values cannot be used, mitigation credits must be used at a 2:1 ratio by project length.~~

See response to comment CDFG-06.

SFT-03

The SMP has been modified to further reduce potential adverse impacts of the program in the Pajaro River Basin. Please see the master response regarding alternatives for a discussion of these changes. Under the Modified Pajaro River Basin Alternative, no in-stream routine maintenance activities, including sediment removal, wetland vegetation control, or removal of in-channel trees, would occur within Llagas Creek downstream of Highway 152 or on the Pajaro River within Santa Clara County.

SFT-04

To clarify the differences between in-channel and upland vegetation management, definitions for channel and vegetation management are added to the EIR. See the master response regarding alternatives.

SFT-05

See the footnote added to revised Table II-4.

SFT-06

In the Pajaro River Basin, vegetation management work is projected on Jones Creek, West Little Llagas Creek, Madrone Channel, Princevale Drain, and Edmundson Creek where work has not been undertaken on a frequent basis in the past. Table 2-4 is added to the list of revisions to the EIR to indicate the location of these areas, the type of work activity and the projected impacts to stream vegetation. The wetland area affected by vegetation management in these new work areas are 1.7 acres in areas where only vegetation management is undertaken in the channel and 2.6 acres in areas where both vegetation management and sediment removal are undertaken in the channel.

SFT-07

Herbicides would be used in intervening years at those locations where sediment removal is also conducted. Of the 11 acres of freshwater wetland vegetation which will be impacted by sediment removal in the Pajaro River Basin, 1 of those acres occur on stream reaches where only sediment removal is conducted, and 10 of those acres occur where both sediment removal and vegetation management are conducted. Consistent with the impact analysis developed for this EIR to assess temporary but repetitive impacts (page IV-B-62 of EIR), vegetation management activities which occur in the same stream reaches as sediment removal are not added to the 11 acres assessed for sediment removal in Pajaro River Basin channels where both activities occur.

Total impacts to stream vegetation from sediment removal and vegetation management in the Pajaro River Basin under the Modified Pajaro River Basin Alternative add up to 49 acres (see revised Table IV-B-7 of the EIR). Note that this total is from 11 acres of freshwater wetlands affected in sediment removal areas (including both sediment only and herbicide/sediment areas as discussed in above paragraph), and 4 acres of freshwater wetlands and 34 acres of riparian vegetation in herbicide only work areas.

SFT-08

Please note that the 157 acres of upland vegetation described on EIR page IV-B-75 is not in-channel vegetation. Rather, this vegetation primarily comprises the non-native grass and ruderal vegetation found adjacent to the bed and bank of streams, such as that growing on the tops of levees. This vegetation is currently routinely cleared by the District by mowing and discing, a process that can disturb adjacent wildlife. Because equipment is constrained to the dry season, mowing and discing currently occur during the breeding season for many bird species. Additionally, because the vegetation regrows faster after mechanical as opposed to chemical treatment, the areas often must be treated twice a year. By using herbicides on upland vegetation in the future, work could be done outside of nesting season and would only disturb the area once a year. The District thus believes that resuming herbicide use for upland vegetation control would not be a significant impact.

SFT-09

Comment noted. See master response to alternatives and response to comment SFT-04.

SFT-10

As described on pages V-5 to V-7 of the EIR, initial and long term impacts to stream vegetation were considered for the alternatives. For the Modified Pajaro River Basin Alternative, there will be no change in the initial and long term impacts since the method of managing channel vegetation will not change from the current methods.

Although direct impacts under the Modified Pajaro River Basin Alternative will not be changed, there will be a benefit under this alternative due to the seasonal presence of vegetation during the breeding season. The District agrees with the commenter that this benefit should be recognized and is now recommending that the mitigation program for the Modified Pajaro River Basin Alternative be reduced by the equivalent of 2 acres impacts of freshwater wetlands and ~~2~~ 1 acre of riparian vegetation. See Revised Table IV-B-7.

SFT-11

See master response regarding alternatives. The level of service will be the same between the alternatives.

SFT-12

See Response to AU-7.

SFT-13

Comment noted. Therefore, the third paragraph on page IV-D-17 is replaced with the following, and Table S-1 *Summary of Potentially Significant Impacts and Mitigation in the EIR*, of the EIR is revised as follows:

Impact Haz-1: Preventing Exposure of Mercury During Bank Protection Projects

Mitigation

Mitigation for this potential impact is accomplished by the application of the following BMP and mitigation measure:

1.10 Avoid Exposing Soils with High Mercury Levels

Bank protection projects in portions of the Guadalupe River watershed affected by historical mercury mining may expose soils containing mercury which can affect stream water quality.

1. In the specified channel reaches in the Guadalupe River Basin, soils that are likely to be disturbed or excavated shall be tested for Mercury (Hg). Soils shall be remediated if:
   - A. disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or
   - B. disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg.
2. Remediation can be accomplished either by:
   - A. treating the site so that the remaining soil after excavation for the purpose of installing bank protection will not be susceptible to erosion, or
   - B. by further excavating contaminated soils and replacing them with clean fill or other bank protection materials that are free from contaminants.
   - C. Soils with mercury concentrations exceeding 20 mg/kg will be removed and disposed of in a Class I landfill following established work practices and

hazard control measures.

3. To ensure worker safety is protected during bank protection projects with elevated mercury concentrations in the exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the Occupational Safety and health Agency (OSHA).

SFT-14

The SMP has been revised to included reach specific information on the location of projected work and impacts. See Appendix I of the SMP.

SFT-15

The EIR has essentially taken a worst-case approach to assessing impacts and thus acknowledges that impacts could occur even in heavily modified channels. For example, the majority of wetlands that would be impacted by the SMP occur in modified channels, including those lined by concrete (e.g. EIR page IV-B-65). Although such channels may not provide optimal habitat, the District proposes mitigation for all such impacts, even if habitat quality at an individual site may be poor. On the other hand, the EIR recognizes that some habitat is of such quality that maintenance work within it is not considered routine. Thus, the District has removed certain channel reaches and certain activities (e.g., concrete bank protection in high quality riparian habitat) from the SMP so that impacts to these sensitive sites can be assessed on an individual basis.

SFT-16

All potential impacts of the mitigation program which were known during the preparation of the DEIR were included. The MMRP contains additional details on the mitigation program including some new information determined during the ongoing design phase, however, no new potentially significant cumulative effects have been found since the DEIR.

SFT-17

The District concurs. The last sentence of the fourth paragraph on page VI-4 is revised as follows:

> All environmental effects are expected to be resolved in the individual project CEQA documents tiered from this programmatic EIR ~~therefore, no cumulative effects along with the SMP work activities will occur.~~

SFT-18, SFT-19

As stated on page IV-B-42 of the EIR, Llagas Creek supports steelhead although downstream passage by steelhead smolts is hampered by low spring streamflows. Thus, steelhead migration is described as limited on page VI-6 of the EIR, however, a commitment is made to investigate and, if necessary, modify the future design of the water diversion structure associated with the Church Pond Number 2 Wetland Mitigation Site to avoid impacts to migrating steelhead. The second paragraph on page VI-6 is revised as follows:

> This reach of Llagas Creek has limited potential to be a migratory corridor for steelhead trout. This potential will be further evaluated during the project's individual CEQA review. If necessary, the water diversion structure will be designed to allow for fish passage throughout the year, by installation of a fish ladder or other means, thus avoiding impacts to migrating steelhead. The cumulative effect of another fish ladder on Llagas Creek will be considered during design of this project, and alternative means to either divert water from Llagas Creek or to provide fish passage around a water intake structure will be considered.

SFT-20

Additional design work on the Los Capitancillos Freshwater Wetlands Mitigation site has determined that water will not be regularly discharged to Guadalupe Creek although an overflow structure may be necessary for use during flood events.

SFT-21

The last sentence on page VI-11 of the EIR is revised as follows:

> Second, SMP activities are proportionally much greater in size (~~265~~ 229 miles of streams) than stream projects implemented by others, yet the SMP avoids or mitigates for most of its own impacts~~; thus there is no cumulative effect when combined with these much smaller projects~~. However, the remaining significant and unavoidable project-level cumulative environmental impact under the Modified Pajaro River Basin Alternative (Impact Bio-4,) will continue to occur and is incrementally significant when SMP activities are combined with other activities affecting District channels.

SFT-22

The SMP describes an ongoing maintenance program conducted by the District. The program EIR assesses the potential environmental impact of the activities carried out under the SMP, paying particular attention to the cumulative impact of maintenance conducted throughout the District and over a period of many years.

Some of the permits that the District needs to carry out portions of the SMP, such as work in channel which requires permits from the U.S. Army Corps of Engineers or the California Department of Fish and Game, will need to be renewed from time to time, and additional state or federal environmental review may be required by the permitting agencies.

It is intended that the SMP activities will continue indefinitely and that subsequent CEQA review by the District itself will not be necessary for the majority of the program. As part of the present programmatic environmental review of the SMP, the District is establishing the explicit conditions it will use to determine whether future activities are part of the SMP and hence considered under the program EIR or whether they fall outside of the SMP and need separate environmental review. This process is addressed in the EIR in Section II.C.6 Project Description, Activities Not Included in SMP. That section excludes from the scope of the SMP the following: emergency activities, Capital Improvement Projects, non-SMP maintenance projects, and activities outside of the scope of routine maintenance. The last section specifically excludes 1) sediment removal and vegetation management on stream reaches above the 1,000 foot elevation contour, 2) certain higher impact hardscape bank protection projects, and 3) herbicide and vegetation removal in certain reaches of Llagas Creek and the Pajaro River in the Pajaro River basin in Santa Clara County.

The District expects that the remainder of the maintenance work in Santa Clara County can proceed with the BMPs and compensatory mitigation defined in the SMP. The sufficiency of this mitigation is approximately scaled to the extent of projected future maintenance. Although the SMP describes maintenance activities that may happen throughout the District (with the exception of the excluded areas described above), much of the environmental assessment relies on the use of past maintenance work to project the location and extent of future maintenance work.

In order to assure that the potential for the environmental impact of future maintenance does not significantly exceed the impacts described in the program EIR, the District will report the extent of maintenance work on an annual basis. As long as the long-term, cumulative extent of **maintenance work for sediment removal, channel hand and channel herbicide will not exceed the length amounts shown in Tables II-3 and II-4 (revised) by basin, the** District will presume that the mitigation in the SMP is adequate and that the program EIR will continue to cover the future maintenance activity.

To clarify this information, the following revisions are made to the EIR on p. II-30, second paragraph:

> The projections for future work under the SMP is based on analysis of historical data going back to 1977. All forms of maintenance show a consistent pattern, however projections of future stream maintenance activities for the SMP and Program EIR cannot represent the exact extent of work which will occur. Actual stream maintenance activities can vary from year-to-year. There may be some future routine maintenance activities which are consistent with the descriptions of work and impacts overall but which vary in location from the District's projection of work areas. Maintenance at such sites is still included in the program as long as it does not result in significant environmental effects substantially different than those evaluated for the Program as a whole. Work is considered included in the SMP if similar work has been performed historically at that location, the work is consistent with the District's Maintenance Guidelines, or the work is needed to maintain the flood conveyance capacity but does not increase the designed flood conveyance capacity. Based on annual reporting, the cumulative extent of maintenance work for sediment removal, channel hand and channel herbicide forms of vegetation management should not exceed the length amounts shown in revised Tables II-3 and II-4 by basin in order to be consistent with the environmental evaluation and mitigation provided under the SMP.

If the cumulative trend of maintenance work appreciably exceeds the base projections in the SMP and EIR, taking into account the year-to-year variation from weather, then the District will undertake a supplemental environmental evaluation in order to see whether the actual extent of cumulative impacts is greater than was anticipated in the present program EIR and whether additional mitigation may be needed.

SFT-23 and SFT-24

The statement on page II-18 of the EIR incorrectly states that an amendment to the Operations and Maintenance Agreement between the District and NRCS is needed prior to using herbicides. See response to RWQ-CC-05 which discusses restrictions on the use of pesticides in the biological mitigation plantings areas only. Aside from the restrictions in the planting areas, there is no discussion in either the 1982 EIR/EIS or in the Operations and Maintenance (O&M) Agreement prohibiting the use of herbicides. The commenter is correct, though, that volunteer herbaceous wetland vegetation will be allowed to grow on the bottom of reaches 1 and 2 of Llagas Creek. He is also correct that the design of these reaches has taken into account the roughness associated with herbaceous wetland vegetation. It is not the intent of, nor will the District use herbicides to target and kill in-channel wetland vegetation in these reaches. Furthermore, as described in the master response regarding alternatives, reaches 1 and 2 of Llagas Creek (which are downstream of Highway 152) are excluded from the SMP.

SFT-25

The third paragraph of page 5-6 of the SMP will be revised:

> The District's Board of Directors has expressed the desire to mitigate for wetland impacts by creating new wetlands. At this time, the mitigation proposal includes three sites where there are certainties that new wetlands can be created. The District will continue searching for additional sites for freshwater wetland creation. An extensive search initially conducted in 1997 will be reviewed. The District is currently investigating the feasibility of establishing freshwater wetlands as mitigation at the Coyote Valley Campus Industrial area and at the South County Regional Wastewater Authority (SCRWA) adjacent to Llagas Creek in the City of Gilroy. A preliminary investigation of the SCRWA site has found approximately 150 acres of the site could potentially be converted to wetland habitat (Philip Williams & Associates and H.T. Harvey & Associates, 2000). If additional freshwater wetland sites are located, then the Stream and Watershed Protection component of the mitigation package would be reduced. The sites currently identified for freshwater wetland creation are described further below.

Add to the References in Chapter 7 of the SMP:

> Philip Williams & Associates and H.T. Harvey & Associates. 2000. South County Regional Wastewater Authority Site Wetland and Riparian Habitat Mitigation Opportunities and Constraints Analysis. September 22, 2000.

SFT-26

Paragraph 4 of page III-15 of the EIR discusses the project's effects on wetlands and mitigation and thus its consistency with the California Wetlands Conservation Policy. Refer to master response regarding alternatives for reduced level of impact to wetlands.

SFT-27

See the master response regarding alternatives and the response to RWQ-CC-02.

SFT-28

See the master response to alternatives. The Modified Pajaro River Basin Alternative offers a balance of herbicide use and environmental protection which is consistent with SMP policies.

SFT-29

See response to comment SFT-10. No substantial evidence is provided to justify why impacts should be reduced by 50% if herbicides are not used. District staff has been unable to meet with commenter to discuss. No change is made.

SFT-30

The intent of BMP 3.10, *Conduct In-Channel Work During the Dry Season*, is to preclude activities that might have significant impacts on water quality or in-stream resources if conducted in the channel during the wet season. Some of the minor activities included in the SMP would have little or no effect on resources if implemented during the wet season. Revisions regarding the steelhead migration and spawning season were made after review of District trapping records and consultation with both CDFG and NMFS.

SFT-31

See the master response regarding alternatives.

SFT-32

Copies of the proposed Final EIR, Responses to Comments, MMRP, and findings regarding significant environmental effects will be made available to commenter prior to the final hearing.

SAN JOSE
CAPITAL OF SILICON VALLEY

CITY OF SAN JOSÉ, CALIFORNIA

DEPARTMENT OF PLANNING, BUILDING AND CODE ENFORCEMENT
801 NORTH FIRST STREET
SAN JOSE, CALIFORNIA 95110-1795

JAMES R. DERRYBERRY
DIRECTOR

May 11, 2001

Ms. Cindy Roessler, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT AND STREAM MAINTENANCE PROGRAM REPORT FOR MULTI-YEAR STREAM MAINTENANCE PROGRAM (OA01-04-007)

SJ

Dear Ms. Roessler:

The City of San Jose appreciates the opportunity to review and comment on the Draft Environmental Impact Report (EIR) and Stream Maintenance Program Report for the Santa Clara Valley Water District (District) Multi-Year Stream Maintenance Program. The City of San Jose has some concern with respect to the City's ability to install and/or repair storm drainage outfalls. The City requests that the following comments be addressed in the EIR/Report for the project.

-1 It is noted in the document that the limit of the District's responsibility lies only in areas where they have ownership or easements to maintain the waterway. In the context of a District project, it should be explained how the project interfaces with portions of the waterway not under their jurisdiction. Would those areas be included in the project by way of soliciting appropriate approvals from affected property owners? It would seem that by not including the entire reach, the overall objective of the project could not be achieved (i.e. sediment removal, etc.).

The District should state if they have any long-term objectives to secure jurisdiction of all waterway rights-of-way. It would seem that ultimately this would have to occur to ensure that the District would have total control of the waterway.

-2 The City would like clarification of the process by which the City would receive appropriate permits to do work on outfalls under City jurisdiction. In some cases the City or the City's contractor must traverse District rights-of-way to access the City's drainage system for purposes of cleaning and repair. The City feels that a blanket permit should be issued to the City for this type of circumstance. Delay in receiving required permits sometimes restricts the City's operations, especially in emergency situations.

PLANNING DIVISION (408) 277-4576
CODE ENFORCEMENT (408) 277-4528
IMPLEMENTATION DIVISION (408) 277-4576
DIRECTOR OF PLANNING, BUILDING AND CODE ENFORCEMENT (408)277-4754
BUILDING DIVISION (408) 277-4541
FAX NUMBER(408)277-3250

Thank you again for the opportunity to comment on the Draft EIR and Report. The City looks forward to reviewing the final documents when they become available. If you have any questions regarding these comments, please contact Jim Leitner, Senior Civil Engineer, Department of Streets and Traffic at 408-277-5503 or myself at 408-277-4576.

Sincerely,

Janis Moore
Planner II

C:Jim Leitner
Don Arnold

OA01-04-007 DEIR SCVWD Stream Maint Pgm Ltr.doc/JAM/203-07

Responses to Comments in City of San Jose Letter

SJ-01

District jurisdiction and District easement are not the same. As described on page II-1 of the EIR, District jurisdiction includes all streams with greater than 320 acres of watershed, however, the District does not own property or have easement on all lands within its jurisdiction and therefore does not have the authority to conduct work on all such lands. As described on page III-5 of the EIR, the District performs routine maintenance only on those private parcels for which easements have been obtained. Occasionally, the District negotiates for additional easement when necessary to provide maintenance, however, acquisition of all waterway rights-of-way are not proposed by this project nor are they necessary in order to conduct the routine maintenance work described.

SJ-02

The City can apply for a permit from the District under District Ordinance 83-2 as described on page III-5 to cross District right-of-way. The District would support a blanket permit to support work on City outfalls. Permits are not necessary in the event of actual emergencies.

May 13, 2001

via facsimile
5 pages total

Cindy Roessler, Project Manager
Santa Clara Valley Water District
Project Management Unit
5750 Almaden Expressway
San Jose, CA 95118-3686

RE: Multi-Year Stream Maintenance Program and Draft EIR

Dear Ms. Roessler:

CM Thanks for the excellent work that you and other District staff contributed to these reports. My only comment relates to the use of herbicides (especialy glyphosate) for vegetation management.

-1 First, I share the questions and concerns raised by Richard
McMurtry of the SF-RWQCB staff about chronic toxicity testing,
and I hope the District will be able to assist in resolving the
-2 data gaps. Second, I share the glyphosate concerns described in
Appendix.H to the Stream Maintenance Program regarding
"controversy over health effects" (2.1.2.12, p.31 ff.) and
"environmental safety" (2.1.3, p.34 ff.). Additionally, I would
-3 note that glyphosate-based herbicides are often the pesticide of
choics for municipal agencies, parks and recreation districts,
and schools, so community exposure (especially for children) may
be substantially more frequent than the occasional District
application.

-4 Finally, as I understand the provisions (C.9.d - attached) in the Santa Clara Valley Urban Runoff Pollution Prevention Program's NPDES permit adopted 2/21/01 by the San Francisco Bay Regional Water Quality Control Board, all copermittees (including the District) are expected to implement a pesticide toxicity control plan including goals and implementation actions to replace pesticide use with least toxic alternatives.

> "The Dischargers shall adopt and verifiable implement policies, procedures, and/or ordinances requiring the minimization of pesticide use and the use of integrated pest management (IPM) techniques in the Dischargers' operations."

-5 Accordingly, my request is that the preferred alternative adopted for the multi-year stream maintenance program for all of Santa Clara County be the "No Herbicides Alternative", or at a minimum, the "Modified Pajaro River Basin Alternative" extended to include the Santa Clara Basin.

Thank you for your consideration of this suggestion. Please let me know if you have any questions.

Trish Mulvey

Trish Mulvey
Cofounder, CLEAN South Bay
527 Rhodes Drive, Palo Alto, CA 94303
(650) 326-0252 or mulvey@ix.netcom.com

Attachment

cc: Interested Parties

Responses to Comments in Trish Mulvey Letter

TM-01

See response to comment RWQ-SF-10.

TM-02

As explained in Appendix H of the SMP, glyphosate has become a controversial herbicide largely because it is so widely used. Glyphosate has a substantial track record at present and has been subjected to a substantial amount of industry, academic, and governmental review. Much of the available literature on glyphosate was obtained for Appendix H and most of the putative adverse effects cited in anti-pesticide literature was found to be statistically insignificant or to arise under conditions which are far more extreme that would be encountered in normal use.

TM-03

As the commenter notes, the widespread use of glyphosate raises the potential of cumulative impacts. Glyphosate used in gardening and landscape maintenance in public places is a potential source of exposure to the general citizenry. The overlap of this general exposure with potential exposure from District herbicide application is very low and hence the actual potential for cumulative exposure is also very low. As the EIR states, glyphosate is applied by the District usually once or, occasionally, twice per year. Unlike a landscaped area or a private residential garden, the District applies herbicide to vegetation where the public would not normally be present and hence would not contact the herbicide. Public access to the creek corridors is usually on a trail and potential glyphosate exposure is essentially nil. District application uses large diameter nozzles and low pressure designed to produce large droplets in order to minimize drift, hence the potential for exposure away from the applications site is also essentially nil. It is been clearly demonstrated that glyphosate has a low persistence in the environment (see Appendix H of the SMP and master response regarding aquatic herbicides). The specific conditions of soil, air exposure, sunlight, and water content affect the rate of biodegradation or chemical breakdown, but a reasonable assumption for the potential exposure along Santa Clara County Creeks shows that there would be essentially no buildup due to successive annual applications.

TM-04

Comment acknowledged. The District has the goal of reducing pesticide use consistent with its effective use of the taxpayer's dollar in accomplishing the objectives of the SMP. The District has developed a new Pesticide Policy which will meet the goals of the new National Pollutant Discharge Elimination System (NPDES) permit.

The Vegetation Management Unit staff of the District is formalizing its continually evolving pesticide program with the development of draft policies and procedures. This policy defines the District's historical use of pesticides and on-going improvements to reduce risk, and establishes a formalized, routine review of the program to ensure the continuation of a progressive, evolving, reduced risk program.

TM-05

See master response regarding alternatives.

WESTERN WATERS CANOE CLUB

Affiliate Member of the American Canoe Association, Est. 1880

40 Redding Road
Campbell, CA 95008

May 11, 2001

Ms. Cindy Roessler
Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Subject: Draft Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program Comments.

Dear Ms. Roessler:

WW The Western Waters Canoe Club has reviewed the subject document and has the following comments:

-1 The draft EIR does an excellent job of identifying Plans, Ordinances and Policies that could affect the project (Section III). It also does a very comprehensive job of describing the Environmental Assessment performed (Section IV) and an excellent job at addressing some of the sub-headings under this section. However, there are many inaccuracies in the Report that need to be corrected and properly addressed and it contains a number of major contradictions. The EIR also does a fairly good job of describing the devastating affect the proposed maintenance activities will have on the environment, our water bodies, aquatic habitat, resources and wildlife and identifies some of the things that could be done to improve conditions and better manage things. Unfortunately it then recommends the same high cost, destructive practices that are currently being implemented. This defies logic, common sense, and environmental responsibility and is not only contrary to all current environmental and water quality goals and regulations, it is totally contrary to the SCVWD's newly established program of "Working with Creeks, Not Against Them."

-2 Overall we feel that the maintenance plan which is detailed and identified as the preferred alternative in this EIR will be extremely damaging to the environment, will negatively impact water quality and most beneficial uses as well as wildlife, especially special status species. We strongly urge that the described maintenance activities not be permitted as proposed as they violate most California and Federal environmental regulations, the environmental protection and restoration goals of most agencies,

WW

government bodies, environmental organizations, and community initiatives. Our specific concerns and objections are listed below:

INTRODUCTION

-3 We strongly disagree with many of the statements made in this section. While the Santa Clara Valley Water District (SCVWD) may well be responsible for providing water supply and flood protection for Santa Clara County in an environmental responsible and cost effective manner, we feel that with respect to flood protection they have done neither. Every single flood control project to date in the Guadalupe sub-watershed has been devastating to the environment, has not performed as promised, has not satisfied its environmental mandates or promises and has been outrageously expensive. Worse yet, all proposed flood protection projects for the same watershed, which are now being pushed in an attempt to fix the problems of the failing projects only offer more of the same environmentally damaging, flawed concepts and perpetual high maintenance efforts at absurd costs. -4 We strongly disagree that the SCVWD should be the lead agency in fulfilling the requirements of CEQA. Based on their track record of severely degrading all of our waterways they have attempted to control, this would be akin to putting the fox in charge of the hen house. The SCVWD admits that in the past they just considered their maintenance projects as categorically exempt or could be undertaken after processing a Negative Declaration. This is exactly why we have lost so much of our resources to date. You can't have an agency responsible for providing services that have always degraded the environment and our beneficial uses responsible for policing itself, as this is a gross conflict of interest.

-5 We feel the proposed maintenance plan is far too general. There are no real specifics in the Report. Some sections of the Report indicate it will run for 10 years, some sections state it will run for 20 years and in many cases it states the plan will be implemented indefinitely. We strongly disagree with granting any agency carte-blanch to perform vaguely defined "Maintenance Activities" for an indefinite period. Conditions, regulations and public desires change over time and it is both unacceptable and irresponsible to lock any environmentally damaging, extremely costly program in place for even a few years, much less for an indefinite period.

PROJECT DESCRIPTION

-6 One of the biggest problems with all traditional flood control/protection concepts is that they destroy the natural functioning of the waterway. Streams and rivers are self-forming and self-maintaining. They always adjust themselves and seek their most stable form for their environment. Whenever their form or environment is altered they will readjust themselves to compensate and overcome the alteration in order to recover their natural function. The best way to keep them in an unstable condition is to continually attempt to thwart their recovery efforts. This continued effort is being identified as "required maintenance" in the EIR. It is not only environmentally destructive and extremely expensive; it is a never-ending task.

-7 Another major problem is channel definition. The EIR defines a channel as "that portion of any waterway which carries water and flood flows, whether in a natural or modified condition." **This is incorrect and it is one of the basic fatal flaws with all traditional flood control/protection concepts.** A river or stream channel only carries normal water flows and its sediment load. The river constructs its channel to a proper width. depth and pattern that enables it to effectively transports the sediment in its system. When normal flows are exceeded a river overflows its channel banks onto its floodplain. The floodplain slows down and dissipates flood flows and prevents erosion while flows and velocities in the river channel remain high to effectively carry the river's bedload sediment while some fine sediment settles out on the flood plain. Any attempt to modify the river channel to carry all flows upsets the normal function of the river, causes erosion and sediment deposition and sets in motion the river's fight to regain its lost function. And, as proven time and time again all over the world, the river will always win this battle. Unfortunately by attempting to fight the river's effort to repair itself, the proposed "maintenance" activities further degrade the ecosystem and negatively impact wild and aquatic life as well as water quality and most beneficial uses. These ill-advised concepts can no longer be permitted.

-8 What is most unfortunate, is there still appears to be a belief that traditional flood
control concepts work, that the SCVWD owns our streams and that their primary goal is
to modify stream channels to carry whatever flow is dumped in them regardless of cost or
consequences. We strongly disagree with these concepts and will use all of our resources
to oppose them. Our streams are critical public resources, traditional flood control
methods don't work as has been proven time and time again, and the SCVWD does not
have the authority or responsibility to turn our streams into flood control ditches. The
-9 SCVWD has spent hundreds of millions of dollars on Guadalupe River projects in the
past 20 years and none have worked according to design or as promised. Now they are
proposing new projects in attempt to solve problems caused by the old ones that will cost
hundreds of millions more. These projects continue to widen channels and deprive the
waterways of their floodplains so they will also require perpetual maintenance and are
doomed to failure. Although the SCVWD claims they design channels to carry 100-year
flood flows and about 350 miles of creek channels in the county are able to convey this
flow we find this figure hard to believe. All of the recent flood control projects on the
Guadalupe River were designed to carry the 100-year flood flow and none can do so. If
they could, why are new projects needed in attempt to fix the old ones? Usually the
-10 more a channel is modified and hardscaped the more likely it is to flood. How can
anyone believe that the concrete channels depicted in the photos on pages II-3 & II-7 of
the EIR do not devastate the environment and aquatic resources, decrease land values,
decrease beneficial uses and increase the public safety hazard? It is curious to note that
the channels that are most modified require the most maintenance and also cause the most
flood damage. A good example is Canoas Creek on the Guadalupe System, a totally
destroyed stream that is now predominantly a concrete ditch full of sediment and one of
the areas slated for sediment removal maintenance. Another example is the Lower
Guadalupe Flood Control project area. There has been ongoing work in this area since
the project was first constructed in the 1980's in an attempt to retain its flow capacity. A
new flood control project is slated for the area and so are sediment removal efforts. Why?

WW

-11 As the EIR states, "most District (SCVWD) streams in urban areas have been modified to increase flood water capacity and stabilize the banks." **This is the real problem.** By modifying the stream channels the District destabilized the streams and their banks, degraded their proper functioning and surrounding environment and established the need for continuous maintenance. It's a self-fulfilling policy. The more streams that are modified the more construction and maintenance work that is needed and thus the larger the organization required to support these efforts.

Sediment Removal

-12 While we agree with the EIR's statement that sediment deposition is a natural process and it will tend to deposit in flat areas, we would like to point out it doesn't deposit in flat channel areas of natural functioning, stable streams. It only deposits in "modified channels" or in steams that are overly wide, straight or otherwise destabilized. If streams were restored or were permitted to restore themselves, then sediment would not be deposited, even in flat areas, and its removal would not be required.

-13 The EIR states sediment removal will take place when an accumulation of sediment 1) reduces capacity 2) prevents facilities or structures from functioning or 3) impedes fish passage. In the Contract 2 area of the Downtown Guadalupe Flood Control Project, sediment builds up in the widened channel so fast that sediment removal efforts would need to take place every few weeks to keep the designed low flow fish passages open. This has not happened. The only time sediment was removed in this area was a year or two after the project was built and when salmon were spawning in the area in violation of promises that no work would be performed when salmon were in the area. Within a few weeks after the sediment removal efforts were completed the low flow channel was completely filled in with sediment again under low flow conditions. Why isn't it continuously removed according to project commitments? If the District does not honor present commitments or project mandates, why should anyone expect them to do so in the future? Despite the described problems in this area, it is interesting to note that this section of the channel is in the process of fixing itself. Before the stream was overly widened by the flood control project and all vegetation was removed it was a narrow well shaded channel that was fairly stable and survived the 1995 flood flows without flooding while the Contract 1 section of the project which was completed failed miserably just downstream. Now the upper Contract 2 section is attempting to regain its stable form. The channel is attempting to narrow itself by filling itself with sediment. There are now two channels with an island in the middle and willows have established themselves on the island. Eventually the stream will close the smaller channel and return to its single narrow channel form if left alone but this is not likely to happen, as most assuredly it will be messed up again under the guise of flood protection.

Vegetation Management

The EIR states that "vegetation management in and adjacent to creeks is necessary to maintain the ability of channels to function as flood protection facilities."

WW

-14 **Creeks are not flood protection facilities! This belief and attitude is another primary reason why our streams are so degraded today.** Streams are some of the most important living ecosystems we have and they function perfectly fine with little to no maintenance when in a stable state. Vegetation is required along creek banks and in the floodplain to help maintain bank stability. This riparian vegetation also filters runoff, prevents erosion, provides wild and aquatic life habitat, provides shade cover to keep water cool and prevent excessive evaporation and supports all beneficial uses. It is critical to the survival of aquatic and special status species.

-15 The vegetation removal plans, as stated in the EIR, will further degrade and destabilize our streams, increasing erosion and thus sediment deposition downstream and this will increase flood potential downstream, decrease water quality and will negatively impact most beneficial uses. -16 The EIR indicates that the primary methods of vegetation removal will be the use of herbicides and mechanical methods. We find the use of herbicides to kill and control vegetation in stream channels and riparian zones despicable and unacceptable. Again we must emphasize that in-stream and riparian vegetation is absolutely essential for a healthy aquatic ecosystem and these systems must not be destroyed. The EIR states in Table II-4 that 163 miles of channel and 51 acres of riparian and wetland vegetation will be treated with herbicide in the Santa Clara Basin alone each year. Figure II-3 shows that this vegetation control will take place along the entire length of the Guadalupe River and many of its feeder creeks that currently support numerous special status species. It is unconscionable to spray these areas with herbicide. The EIR states that herbicides are not broadcast sprayed across the channel. This has not been the case, in the past. We have videotapes of herbicides being broadcast sprayed by the SCVWD along riparian areas and across the river channel in the Guadalupe River system near San Jose Airport a few years ago. This activity was taking place during the salmon run season when fish were known to be in the river and waterfowl were in the vicinity.

-17 The EIR states that Aqua Master will be used for channel spraying. It also states that Glyphosate is the chemical Aqua Master is made from. This is the same chemical Roundup Pro is made from which is not approved for use in aquatic areas. What is the difference? What is the difference between these chemicals and the Roundup sold for use around the home which specifically states it is hazardous to "humans and domestic animals" and clearly warns it should not be used in wetland areas or water bodies? Roundup for home use is made up of less than 1% Glypohosate and its other ingredients are listed as inert. What is the composition for Roundup Pro and Aqua Master? Why would it be OK to use similar and possibly more potent products around wildlife when they can't be used around domestic animals especially since wildlife often feed off the vegetation being sprayed? There were reports in the past that Roundup and Rodeo were suspected of causing mutations in certain organisms. These issues need to be addressed in the EIR. The EIR states that Aqua Master is nonselective so how can it be selectively be sprayed in a waterway? Wouldn't water carry the spray downstream and kill all vegetation?

WW

Bank Protection

The EIR states that bank protection is performed to repair stream banks that are
eroding or that are in need of preventative erosion protection. We agree with the EIR that
erosion is a natural process and is accelerated by human activities such as improper land
use, grazing, agriculture, road and utility construction. However, the primary causes of
-18 erosion in Santa Clara Basin Steams is vegetation removal and improperly designed flood
control projects. The EIR clearly reiterates, in this section, our position that abnormal
erosion increases sediment deposition, decreases water quality and riparian/aquatic
-19 habitat and increases the potential for flooding downstream.

The EIR states that bank repairs may take several forms including the installation
of hard structures (e.g. rock , concrete, sack concrete, gabions) to soft structures (e.g.
willow brush mattresses, log crib walls, pole plantings) or a combination of both. First of
-20 all, crib walls are not soft structures, they are hard structures. Secondly, any hard
-21 structure or wall placed along the steam bank to deflect the water is guaranteed to cause
problems downstream and will eventually fail. The EIR states that up to one mile of
-22 stream banks may need to be repaired annually. At that rate it will not take long before
there are no quasi natural channels left.

-23 In order to properly correct the failing bank conditions and prevent future
problems in the area as well as downstream, the root causes of the problems need to be
addressed. If the bank failure is caused primarily by vegetation removal, then replacing it
may sometimes be sufficient. The problem is that replacing vegetation is a lot harder
then removing it, as it takes time to establish itself. Oddly, vegetation removal is being
planned & promoted in the previous section of the EIR. Thus the EIR seems to be
advocating another self-perpetuating cycle that makes absolutely no sense. In most cases,
-24 however, bank failure is caused by improper stream hydrology, usually caused by
channel modification and depriving the stream of its floodplain. Unless this condition is
fixed, no amount of bank armoring will remedy the problem; it will only make things
worse, especially downstream. Bank armoring accelerates flows and increases
turbulence, especially along the banks and this increases erosion. In most cases, giving
the stream access to its flood plain, providing a modified flood plain or vectoring currents
away from the banks can reduce high velocities along the banks and thus erosion.

Other Activities

-25 The EIR describes a number of activities that are not included in the EIR or scope of routine maintenance. It indicates that maintenance activities are excluded where there is a high environmental sensitivity. The entire Guadalupe watershed falls into this category as it provides some the last remaining habitat for numerous special status species. Why then does the EIR show maintenance along the entire lower reaches of the Guadalupe watershed? How and when will the activities excluded from the EIR be defined and addressed?

Mitigation Incorporated into the Project

The EIR states that "over the long term the Stream Maintenance Program has the potential to significantly affect the ecological and biological environment of Santa Clara County by cumulatively affecting wetland habitats, including tidal, freshwater wetlands and riparian habitats. It further states that compensatory mitigation will be employed to reduce these impacts.

-26 In many areas of the county, special status species are hanging on by a very thin thread. There can be absolutely no degradation permitted to their habitat. In the past mitigation efforts and promises have been largely a sham. Mitigation is either not accomplished as promised or it is done in areas where it will be ineffective to offset the damage that is being caused. Good examples are the mitigation that was supposed to take place for the Lower Guadalupe Flood Control Project. After the mitigation between Trimble Ave and Montegue Expressway failed the area was abandoned and has never been replanted. When will this be done? When will the mitigation promised in the gabions in the downtown Gualalupe River project area over 6 years ago be implemented? What are the penalties for failure to perform as promised and when will they be assessed? How do you bring back a species once it has been wiped out? Another example is the mitigation area along lower Guadalupe Creek. This mitigation is supposed to compensate for salmon habitat losses slated to take place in the Downtown Flood Control Project. The problem is the Chinook salmon can't currently access the creek, it presently contains no suitable habitat and it will take years to establish any. They probably will never use the creek even if access is provided because Chinook are main stem spawners. If critical habitat and food sources are removed in the lower reaches of the Guadalupe how are outmigrating salmon and steelhead supposed to mature and survive? They can't just up and relocate to some distant location where mitigation may be provided.

-27 We strongly disagree with the EIR which states "avoidance and minimization measures incorporated in the project are considered sufficient to reduce most, but not all potential impacts on special status species." We are certain that the proposed maintenance activities will severely impact special status species and will likely cause their extirpation. Even the slightest degradation of their habitat will accelerate their present decline and place them in grave jeopardy.

-28 The EIR acknowledges that "in principle there are ways that the District channels can be changed to accommodate flood flows without the present need for sediment removal or vegetation management, and there are ways that erosion pressures on stream banks could be reduced." However, we disagree with the statement that this would be a major undertaking requiring substantial expense. It would be far less expensive and environmentally damaging to do the job right than to kept doing it over time and time again and destroying habitat in the process. What is needed is a major change in policy, immediate mandatory implementation and strong enforcement. Protection of our resources, water quality and beneficial uses should be paramount and flood protection should only be part of this process. The current philosophy of flood protection at all cost is totally unacceptable.

ENVIRONMENTAL ASSESSMENT

Geomorphology

-29 The EIR states that most stream instability is the result of channel changes caused by surrounding urbanization and by natural conditions, particularly sediment deposition due to the decrease in channel slope. As previously stated, stream instability is primarily a direct result of improper channel modifications and vegetation removal in the Santa Clara Basin. A decrease in channel slope **does not** result in sediment deposition in a properly functioning stream. In subsequent paragraphs the EIR correctly states that sediment removal has the potential to cause erosion downstream and vegetation removal can also cause erosion and other negative environmental impacts. The document seems to constantly contradict itself.

-30 In another section the EIR states "It is largely channels adjusting to their basic state of equilibrium that results in the need for channel maintenance. This is pure nonsense. Equilibrium and channel stability should be the goal of all projects. If such were the case we wouldn't have to keep pouring money down the river to keep it in a degraded state, which is totally contrary to the rules of the river and all environmental and water quality regulations.

-31 The EIR states that streams in the sediment removal program experience a progressive loss of sediment transport capacity and competence as they flow from steep headwater reaches into the low energy zones of San Francisco Bay. However, it doesn't state that the reason for this is the streams have been purposely modified in a way that decreases sediment transport capacity. -32 The EIR includes Table IV-A-2 which attempts to assign sediment factors and identify sediment sources to Rosgen stream types, but the table is inaccurate. Rosgen stream types A & B are normally not found on alluvial fans and all Rosgen stream types are not stable forms. Some F and G types and all D types are extremely unstable. In addition, contrary to the table, some Rosgen stream types do apply to deltas and tidal channels, mostly E and DA types, which are extremely stable. Historic maps show that the Bay delta contained E and DA stream types when it was functioning in a natural manner before it was modified and messed up by humans and these channel traces can still be seen when flying over the area.

-33 While the EIR attempts to assign all sorts of factors and reasons for sediment problems and shows numerous photos to support its claim, one thing is clearly obvious, all of the channels shown are unstable due to their being modified. The first Paragraph of page IV-A-22 says it very clearly "**many of the channels that the District maintains have been significantly altered and the equilibrium status of the channel is deliberately kept permanently out of balance to maximize flood water conveyance capacity.**" The problem is this concept has not and does not work. It actually increases the chances for catastrophic flooding as seen along the lower Guadalupe River and in similar examples throughout the world. Not only is this policy extremely expensive it destroys the environment, degrades water quality, eliminates habitat, degrades all beneficial uses and violates all environmental laws and regulations. This policy and philosophy must be altered.

Biology

This section of the EIR reiterates how damaging the proposed maintenance activities will be. In a 20-year period it estimates that a total of 78 acres of in-stream woody riparian vegetation will be removed. This is unconscionable and would be and environmental disaster. It classifies habitat descriptions in the project area into the following categories: 1) Tidal salt marsh, 2) Tidal brackish marsh, 3) Freshwater wetland, and 4) Riparian forest and woodland.

-34

In attempting to identify species, especially special status species that inhabit both salt and brackish marshes it glosses over the critical importance of these areas to steelhead and especially Chinook salmon. We know steelhead and Chinook must pass through these areas when they in and out migrate. But this does not only happen in the spring and fall as the EIR states under the salt marsh section. Adult Chinook salmon have been documented in the freshwater sections of the Guadalupe River as early as late June in a number of years and larger numbers have been documented in the river system in August and early September. In order to reach the freshwater section they must migrate through the salt and brackish areas so must do so earlier then they are observed in the freshwater sections. What is not known is how long they need to hold in the salt and brackish areas before migrating into the freshwater sections. In addition, it is known that Chinook salmon juveniles out-migrate within a few months after emerging from their redds, usually in the March to May time frame. It is widely believed that these fish rear in the brackish and saltwater estuaries and depend on this area to adapt themselves for their life at sea. It is not known how long these fish must remain in these rearing/ smolting areas but it is most likely that they would remain there for many months before heading out to sea. While steelhead rear in the freshwater sections of the river they reportedly out-migrate in the April to June time frame. In view of this salmonids are most likely to be present in the salt and brackish marsh area throughout the year. It is known that these areas are critical for their survival so vegetation or sediment removal projects in these areas can not be permitted to adversely impact them. The EIR must properly address these special status species and how their critical habitats will be protected in both the salt and brackish marsh areas.

-35

In addressing riparian forest and woodland area the EIR does not address the anadromous native fish species or other special status aquatic species that utilize streams in these areas or occupy the riparian zones. Why? The red legged frog, southwestern pond turtle, lamprey eel, steelhead and rainbow trout and Chinook salmon must be addressed. Streams though riparian zones and/or the riparian zone itself provide critical habitat for these species and must be fully protected.

Valley Floor Riparian: A Remnant Community

This section of the EIR does a fairly good job of addressing the causes of the problems we are facing, development of our floodplains and flood terraces, often right up to the creek banks. It describes the problems caused by such development and indicates that eventually all riparian zones will be lost. Unfortunately the SCVWD seems to believe it is their job to reward this irresponsible action by destroying our streams and riparian zones in order to attempt to protect those few irresponsible and self serving entities from their arrogant and foolhardy actions at everyone else's expense. This policy and philosophy has got to be changed starting now! We need to start a process of restoring our streams and this restoration process should include reasonable flood protection measures. It should not include the unreasonable measures of protecting those who choose to thumb their noses at nature and responsible citizens and then try to stick everyone with the cost. People must be held accountable for their own actions, so if they build in a floodplain they should expect to get flooded and should shoulder the responsibility for the costs associated with their actions. -36

Fisheries and Aquatic Environment

-37 The EIR contains two tables associated with fish habitats Table IV-B-2 and Table IV-B-3 but the information in these tables appears to be overlapping and inaccurate. For example, Table IV-B-3 lists Steelhead (6) as regularly present in Guadalupe, Alamitos, and Calero Creeks. This is strange since up until last year they didn't have access to these creeks due to impassable dams and as far as is known they have never been observed in these streams in recent times as entrance to them is still all but impassable, except at very high flows. The table also shows that pacific lamprey are often present in Trout (7), Steelhead (6) and Potential Trout (5) streams, yet pacific lamprey are anadromous species and don't have access to many of these streams. The table also lists Chinook salmon as being often present in Potential Trout (5) streams such as Guadalupe and Alamitos Creeks yet the species have never used these creeks in recent times as they don't have access to them. At the same time the table does not show steelhead occupying Mixed Spawning Habitat (3) when they are known to occupy this area. They have been observed and documented in both the lower Guadalupe River and Los Gatos Creek throughout the summer months. Table IV-B-3 also shows steelhead as migrating in Limited (1) areas but not Chinook and it lists lower Los Gatos Creek as one of these areas. Lower Los Gatos Creek is not defined by the EIR but it is known that Chinook spawn in reaches of lower Los Gatos Creek. A steelhead/ rainbow trout was observed and photographed living in lower Los Gatos Creek less than 50 yards upstream of the confluence with the Guadalupe River all summer long several years ago so this stream section also supports them. -38 The EIR also incorrectly states that introduced species are likely to be dominant where percolation ponds exist or where they previously existed, such as on the Guadalupe River and Los Gatos Creek. It is very interesting to note that the area of Los Gatos Creek and the Guadalupe River which were devastated by summer spreader dams have made a remarkable recovery in the past 5 years. In both areas the channel width has decreased, a meander has been established and substantial riparian vegetation has taken hold along the newly defined stream channel. Riffles and pools

WW

-38 (Cont.) have formed and gravel is being recruited. Chinook salmon are known to spawn in the areas that once contained spreader dams on Los Gatos Creek which is identified as Mixed Native/Introduced Fish (2) but the table does not include salmon.

In view of all of the discrepancies with Table IV-B-3 the validity of Table IV-B-2 also needs to be questioned. These tables and their associated text need to be corrected.

Special Status Wildlife

-39 The EIR states that Chinook salmon are "likely strays from Central Valley stocks." It also states that the species does not occur in earlier historical records for the region." **Both of these statements are categorically false and must be corrected!** There are sufficient records of historical salmon runs in south bay streams at times when only Chinook salmon are known to migrate. Historical records tell of area natives catching salmon and steelhead virtually all year long. Only Chinook salmon are known to have multi seasonal runs. Renowned biologists, including Dr. David Starr Jorden and historians, document Chinook, coho and chum in all area streams. Old time residents and avid fishermen reported catching Chinook salmon in area waterways from the late 1800's until the 1970's and others reported sighting salmon in area waters throughout the 70's and 80's that were most probably Chinook. Chinook salmon have been officially documented in area waters from the late 70's until the present day. The Guadalupe Coyote Resource Conservation District has all of the reference documents to support the historical presents of Chinook in area waterways.

Recent genetic testing of Chinook salmon from the Guadalupe River shows that the fish utilizing this system are not hatchery or Central Valley strays. "Genetic testing of some Guadalupe River Chinook show unique genetic markers not found in any other watershed, other samples show a haplotype found only in some Russian River fish. These haplotypes have not been found in Central Valley fish. Other Guadalupe River samples could not be differentiated from Central Valley fish," either wild or hatchery born (Federal Register 1999; Nielsen 1995; Nielsen et al. 1999)." The Nielsen Reports and Federal Register clearly state "there is significant heterogeneity among fall-run hatchery stocks and natural spawning populations of Central Valley fish and there is no significant geographic structure at the basin level for wild run Chinook salmon." It further states, "that comparisons of wild fall run and hatchery stocks suggest that naturally spawning fall run fish in several basins retain some degree of genetic distinctiveness not found in hatcheries." (This statement is most likely partially based on the test results of the Guadalupe River fish from 1993 and 1994).

-40 The EIR also states that Chinook salmon have been captured as early as mid July in the Guadalupe River, however, they have been observed and photo documented in the river as early as late June. -41 While the EIR states the salmon spawn in riffles and need flowing water it does not address the importance of proper stream geometry (cross section, pattern and profile) to assure adequate channel velocities are maintained. At low flows, higher velocities are maintained in a narrow, low flow channel thalweg. This assures adequate oxygen is maintained for aquatic life and sediment is transported

-41 (Cont.) downstream. A narrow/deep channel also provides essential habitat for young fish. Wide channels, common with all traditional flood control projects, reduce or eliminate riparian habitat, shade/hide cover and food sources, increase water temperatures, encourage sediment deposition and provide no fish habitat. As flows and velocities increase in a natural channel, critical levels are reached near the bankfull stage. Water then spills onto the flood plain and this prevents or tends to limit excessive velocity increases, especially along the bank regions thus reduces erosion potential. It is the excessive velocities and velocity vectors that occur in a confined system, especially in the bank regions, common to all traditional flood control projects, which causes severe erosion, high suspended and bedload sediment levels and blows fish and aquatic life out of the system. On the other hand, adequate critical velocities, which occur near the bankfull stage of a natural system are essential for maintaining the stream. These velocities perform the natural work of the river, which is to move its normal bedload sediment and is the way a river cleans and maintains itself. Critical velocities, along with proper stream geometry and composition, facilitates the transport and maintenance of the correct size gravel which form the gravel beds essential for native fish spawning.

Proper stream geometry and flows in concert with valley and stream type are interrelated and normally result in the proper pool/riffle or pool/drop sequence necessary for high quality fish habitat in a natural system. Recent studies show that salmon can detect hyporheic (sub-gravel bed) flows and tend to build their redds over areas in riffles where these flows exist. These flows help keep eggs cooler and cleaner and supplies them with higher oxygen levels. Inadequate pool/riffle spacing or gravel composition would have a negative impact in spawning, incubation and rearing. In study areas, salmon avoided sites with high quality gravel but having inadequate sub-surface flows and selected sites with good sub-surface flows even if the gravel was of lower quality. It is known that both the Guadalupe River and lower Los Gatos Creek have hyporheic flows. The EIR must address how the proposed project will assure that hyporheric flows and adequate size gravel transport is maintained in streams currently supporting salmonid spawning, especially the entire freshwater length of the Guadalupe River and lower Los Gatos Creek.

-42 The EIR addresses temperatures that are too warm for salmon and steelhead but it doesn't state where or when these temperature studies were done. The EIR needs to state where and when such studies were performed. They certainly do not appear to be accurate with respect to fish in the Guadalupe system. We have know newly hatched Chinook salmon have survived at temperatures up to 62 degrees F and we have observed adult steelhead/rainbow trout swimming normally in water temperatures measured as high as 77 degrees F in the Guadalupe system. So before the EIR writes off any stream area as unsuitable for salmonids due to too high a temperature, it needs to perform studies on the fish that occupy the system.

Other Special Status Species

-43 Although the EIR addresses the western pond turtle in Figure IV-B-6 it does not show it along the Guadalupe River. Southwestern pond turtles were observed along the

-43 (Cont.) Guadalupe River in the Curtner Ave and San Jose Airport areas several years ago so they were known to be in the project area. The EIR does not address how habitat for these special status species and the species themselves will be protected from the effects of the project. Since the Guadalupe River System contains numerous special status species the EIR needs to specifically address how these species and their habitat will be protected. The species include steelhead trout, Chinook salmon, red legged frog, burrowing owl. southwestern pond turtle, clapper rail, tricolored blackbird and snowy plover.

One Time Accounting Method for Stream Vegetation Impacts

-44 This section of the EIR indicates that a "one-time accounting method" will be used to account for significant impacts caused by vegetation removal efforts. However, in reading the section one learns that this method will also cover sediment removal efforts. It states that although these efforts will be continuously performed that this accounting method is relevant because the work is spread out over many years. This is absurd and is exactly why a one time accounting method should not be permitted. In the best of situations a special status species may be able to tolerate a one time hit on its habitat but it most certainly will never be able to tolerate continuous degradation. Continuous degrading projects in our stream will have cumulative impacts and eventually will wipe out all of the natural resources associated with them.

Plant, Wildlife, Fisheries & Special Status Species Impacts

The EIR does a fairly good job of identifying negative and significant impacts to plants, wildlife, fisheries & special status species as a result of the project but it then attempts to whitewash these impacts by stating that the implementation of vague practices and mitigation will reduce them to negligible levels. It gives examples of "preventing scour downstream of sediment removal, minimizing vegetation removal and removing sediment from only one side of large channels in alternate years." It doesn't
-45 state how it plans to prevent the scour or minimize vegetation removal or does it define
-46 what it considers a large channel, especially when the EIR's definition of a channel is the
entire river corridor! The EIR also describes the cumulative adverse affects of bank protection on riparian vegetation and functions. It describes its impact on fisheries and aquatic habitat as significant and unavoidable and describes how sediment removal would adversely affect special status species.
-49 -48 -47 It incorrectly states that sediment removal may occur in some areas used by Chinook salmon and steelhead and refers to Table IV-B-8. The entire length of the Guadalupe River and most of lower Los Gatos Creek is used for salmon spawning and steelhead also use parts of Lower Los Gatos Creek and the upper parts of the Guadalupe for spawning. The entire area is shown as sediment and/or vegetation removal areas depending on which maps are referenced. Table IV-B-8 identifies fish habitat types that are known to be in error, reference discussions on Table IV-B-2 & 3. Although the EIR states that "District procedures limit stream maintenance activities during periods when special status species may be present in the area," it has not done so in the past. We have photographs/videotape of construction, maintenance and herbicide spraying projects going on in the river when salmon were not only present but in the process of spawning. The EIR does not address the impacts of vegetation

removal on water temperature and the effects of the removal of sediment on salmon spawning habitat. Rivers are living systems. Gravel moves down the river at higher flows and replenishes the gravel in downstream spawning areas as this gravel is also -50 moved in harmony with river geometry and hydrology. Interference with this process will negatively impact stream composition and spawning potential but it is not addressed. The removal of sediment could also affect the riffle structure, riffle/pool sequence and hyporheric flows important for salmon spawning and the EIR does not address these. The EIR also does not address the utilization of brackish and estuary areas for salmon rearing and how these area will be impacted by the program. The EIR does address the -51 impacts of bank protection efforts in relation to the fisheries values tables but they are known to be wrong so the entire discussion is based on false premises which makes it invalid.

ALTERNATIVES

The EIR lists the following alternatives: Multi-year Program (Preferred), Existing Program, No Work, No Herbicides, Modified Pajaro River Basin, Reduced Work.

We are certain that the proposed project will have adverse significant and unavoidable impacts on all wild and aquatic life, especially special status species, as well -53-52 as the riparian corridor, water quality and most beneficial uses. We do not believe the implementation of "BMPs" or Mitigation measures will reduce these adverse impacts very much. We do know that the adverse impacts are mostly avoidable if a proper project were instituted to "Work With The River, Not Against It." If channels/corridors were properly defined and were restored to a stable condition or even allowed to restore themselves, as many are attempting to do, we could save and even improve our resources and also save a lot of money in the process. The EIR contradicts itself on the issue of alternatives, in some sections it states that it is "possible to eliminate the need for maintenance but it is too expensive and out of the scope of the proposed project." And, -54 in this section it states "there is no way to reduce the need for ongoing maintenance as much of the sediment is beyond the District's control." We strongly disagree with the later statement. If channels were not improperly modified then there would be little or no sediment problems as streams do a very good job of maintaining themselves. We strongly disagree that the effects of the program can be mitigated to insignificance. The EIR has not even validly addressed many of the potential adverse impacts associated with the proposed project as we have pointed out. Many items it attempts to address are base on a false information or assumptions, such as fish stream/habitat types and outright false information, such as the position that there is no historical records of Chinook salmon in South Bay streams and they are hatchery strays.

The EIR states that the No Work Alternative would cause significant threat of flooding to areas that have been removed from the flood plains as a result of flood -55 protection projects. This is exactly why we are in the dilemma we now find ourselves in. How have these areas been removed from the flood plain? How were they relocated and where were they placed? In fact, the areas were never removed from the flood plain, the river was confined in an attempt to prevent it from accessing its flood plain and this set in

-55 (Cont.) motion the river's fight to regain its lost territory. It also sets up a catastrophic flood probability. Instead of the river slowly accessing its floodplain in a beneficial manner and getting things little wet in the process, a wall of water will break through a levee, top a floodwall or back over an inadequately designed culvert or bridge and wipe out everything in its path. Ironically most people living in these flood plains are duped into believing they will be protected by flood control projects and the risk of flooding has been eliminated. While the risk of minor nuisance flooding may be decreased, in reality the risk of major or catastrophic flooding has increased.

-56 Unfortunately the EIR does not discuss the possibility of the use of a combination of activities and methodologies for managing our streams. We believe that this alternative is probably the most reasonable approach. Stream maintenance should include debris, trash and obstruction removal and levee maintenance. It should also include repair of past mitigation sites that have not been maintained as promised. We have no objection to canal maintenance, bridge or other structure repair or replacement and maintenance on channels that have no real wild or aquatic life value at this time, as defined by an independent group such as the Santa Clara Basin Watershed Management Initiative (SCBWMI). Hopefully, these streams will be restored sometime in the future. We believe only meaningful maintenance or restoration should be permitted on all channels that have wild and aquatic life and other beneficial use values. These efforts would increase the streams natural functioning and restore habitat as much as possible while increasing flood protection. In the event bank repair is needed, the cause of the failure would need to be identified and addressed and only soft repairs or other environmentally friendly methods would be permitted except in an emergency or circumstances where there is absolutely no other choice. Likewise, when there is a real sedimentation problem, then the cause of that problem would need to be identified and fixed and only a one time and very limited sediment removal effort would be permitted. No new flood control projects or maintenance activities should be permitted on streams still having substantial habitat and beneficial use values until community stakeholder groups such as the SCBWMI properly assesses these streams. Then, all future projects on these streams should be multi-use projects that have the primary goals of protecting and enhancing our resources and beneficial uses while providing as much flood protection as possible. An immediate halt should be placed on floodplain development and to rewarding those who ignore common sense, prudence and history and build in harms way. Those who have done so and those permitting this folly must be made to shoulder the responsibility, burden and consequences of their actions, not the general public through increased taxes, the loss of resources, decreased water quality and beneficial uses.

-57 Another issue, which needs to be addressed, is run off. As the watershed is developed and impervious surfaces replace vegetated land, flash runoff will increase. Stream channels that had the capacity to carry natural flows are soon overwhelmed by additional runoff. There is only so much water a channel of any size can hold. Even if flood protection measures are taken to accommodate today's flows with some safety margin, development and subsequent flash runoff could easily overwhelm the channel in short order. Flash or excessive runoff must be prevented from flowing into stream

WW

-57
Cont.)

channels. Either runoff must be contained in development areas or it must be routed via pipelines to the bay where it can be adequately accommodated.

-58

The EIR states that the proposed maintenance program will cost about 12 million dollars per year. But, it doesn't state where the money will come from to cover this cost. The EIR needs to address this issue. It is suspected that there will be an attempt to use Measure B funding to pay for this effort. Measure B funding was specifically passed by the public to pay for the SCVWD's "Natural Flood Protection" and "Working With Creeks and Not Against Them" programs. The proposed preferred project does neither. Rather, it does the exact opposite as it clearly states, therefore Measure B funding cannot be used to fund the project.

In summary, we request that all of our concerns identified above be addressed in the final version of the EIR. We also request that the regulatory agencies responsible for issuing permits for the proposed project not do so until it is substantially modified to address all issues of concern, adopts the combination restoration/maintenance alternative described above and then only issue permits for very a limited period of time. Thank you.

Cordially,

L. M. Johmann

L. M. Johmann, PE, CQE, CRE

Cc: Steve Fry
GCRCD
Silichip Chinook
SFRWQCB
NMFS
CDFG
USACOE
FOCC
NHI

Responses to Comments in Western Waters Canoe Club Letter

WW-01

No documentation has been provided to show that the proposed stream maintenance program would be in conflict with environmental and water quality goals and regulations.

The EIR authors disagree with the comment that the proposed Stream Maintenance Program is in conflict with the Measure B goals. Measure B was developed to meet the mission of the District through the comprehensive management of water resources in a practical, cost-effective, and environmentally-sensitive manner. Measure B proposed a balanced program in providing flood protection, water quality protection, habitat preservation, and recreation. The proposed stream maintenance program was developed with the same approach in providing flood protection while protecting water quality and preserving stream habitat. While maintaining flood protection for more than 86,000 parcels in Santa Clara County, the proposed $54 to 59 million mitigation program will: (1) restore 30 acres of tidal wetlands, (2) create approximately 14 acres of freshwater wetlands, (3) preserve and protect approximately 820 to 1,080 acres of streams and watersheds in upland areas, (4) remove approximately 125 acres of the invasive and non-native giant reed in Santa Clara County streams, and (5) provide for mitigation of bank protection projects with hardscape or rock designs.

WW-02

Comment noted. No substantive CEQA response is required. See response to WW-01.

WW-03

The District has compiled a good record of responding to the needs and concerns of the community. There are numerous measures that can be used to address flooding problems. Each may be appropriate for any particular time, situation, and community desires. Individuals, cities, and the District have implemented a variety of flood damage reduction measures in the Santa Clara Valley.

Flooding was a regular and periodic occurrence in the early growth of the Santa Clara Valley. Following the 1871 flood the Guadalupe River was "widened and improved to prevent overflow, work commencing in 1875". Sometime after 1866, a canal was dug on the Guadalupe River from Willow Glen Way to Willow Street to alleviate flooding. This canal is noticeably straighter than both the upstream and downstream stream channel and is referred to as the Lewis Canal, after the landowner, Frank Lewis. The Canoas Creek bypass was diverted (1914-1915) to protect the southern edge of the city from winter floods.

The thrust of these early responses to flooding was protection. This continued following formation of the flood control district in 1952. The floods of the 50's in the rapidly urbanizing valley brought numerous requests " to deepen and widen" and "immediate realignment" of the creeks. Greater environmental sensitivity had not yet become part of the quality of life issues for residents in the Santa Clara Valley. Even the Department of Fish and Game (DFG) had few concerns. When the improvement plans for the high impact concrete-lined channel on San Tomas Creek were submitted to DFG in accordance with state law, their April 1962 reply was "...your operation will have no effect on fish and game. No specific recommendations are required".

When the District was formed in 1952, the Act required that to gain authority to proceed with a project the District must hold a public hearing and receive comments on the proposed project. All projects prior to 1970 had at least a public hearing with the District Board of Directors. After 1970, the project proposals also met the requirements of the new California Environmental Quality Act. Any adverse environmental impacts from constructing flood protection projects were identified and mitigated.

The District's facilities have effectively reduced the flood risk to over 80,000 homes, schools, and businesses. A recent and dramatic example of the immediate impact and benefit of the District's efforts is the Coyote Creek project which was completed in 1995, just months before the record flood. The flow in Coyote Creek on January 27, 1997 was more than 14 percent greater than the previous record in 1983, which had caused widespread flood damage. Had the recent flood protection measures not been in place in 1997, the flooding would likely have exceeded any flood disaster in the county's history.

Today in Santa Clara County, the greatest remaining flood damage threat is where the District has never constructed flood protection measures, like on the Guadalupe River through downtown and further upstream. The District has two projects underway to address these problem areas. The projects are community supported multi-objective measures providing the flood protection needed with a minimum of environmental impact and cost. The proposed project on the upper Guadalupe River avoids impacts by using earthen bypass channels to replicate the natural floodplain function; utilizes native plantings to restore the continuity in the historically fragmented riparian habitat corridor; extends the miles of stream available to the endangered steelhead fishery; provides additional open space in an urban area; and accommodates future recreational trail use.

WW-04

As stated on the fifth paragraph on page I-1 of the EIR, the District is the appropriate governmental entity to serve as lead agency because the District is responsible for providing water supply and flood protection for Santa Clara County.

WW-05

See response to FOG-03.

WW-06

Comment acknowledged. Please refer to master response regarding geomorphology. When a natural watershed is subjected to first agriculture and then to urban uses, natural stream function is disrupted. Traditional flood control follows after preliminary human disturbance and is intended to manage flood waters rather than to restore natural waterway conditions. This phenomenon establishes the present conditions in much of Santa Clara County; this is the environmental setting of the proposed SMP.

WW- 07

The EIR definition of channel is intended to distinguish the stream portion of the environment from the upland portion of the environment. The true channel of a stream system is usually referred to as the "low flow" channel although in fluvial geomorphic terms the true channel is defined by "bank full" which results from peak flows with a recurrence frequency of one or two years and not the actual minimum flow in the channel. Throughout the EIR, however, the term "in-channel" refers to all of the stream system including the true channel and the area inundated under rare storm events. The commenter's description of stream dynamics is correct and is acknowledged, but does not take account of the need for flood protection in urban areas. Please refer also to the master response regarding geomorphology.

WW-08

The District derives its authority to meet flood protection and water supply mandates in Santa Clara County from the District Act as described on page III-2 of the EIR. In addition to "traditional" approaches such as channel enlargement to solve flooding problems, the District considers other approaches. Among these other approaches are corrective measures to reduce the magnitude of the peak flow, structural measures to contain flows within prescribed limits near the stream, and preventative measures to discourage, regulate, or prevent encroachments in the flood hazard areas. The comments are noted. However, defining elements of a flood damage reduction program is not included in the analysis of the impacts of the stream maintenance program.

WW-09

See response to WW-03.

WW-10, 11, and 12

Comment acknowledged. Please refer to master response regarding geomorphology.

WW-13

The Santa Clara Valley Water District (SCVWD) periodically monitors the low flow fish passages in Contract 2 of the Guadalupe River immediately downstream of Coleman Avenue. Sediment has indeed accumulated at this location, but this sediment is not an impediment to fish migration. The geomorphology of the Guadalupe River has changed due to the improvements downstream and will change again when the flood control improvements are constructed upstream. The Corps and District hired an Independent Sediment Review Panel to confirm the Corps sediment analysis for the post project conditions.

The statement that "the District does not honor present commitments or project mandates" is not true. District maintenance staff and biologists periodically monitor the Guadalupe River low flow fish passages in Contract 2 to verify that fish passage is not an issue, as well as other locations throughout the Guadalupe River watershed. When it appears that sediment may become an fish passage issue, the District has and will remove the sediment as required and as permitting allows. The next phase of construction of flood control improvements immediately upstream is scheduled to begin construction in Spring 2002, where the Corps contractor will be required to remove the sediment in the area of the low flow fish passages at the completion of the upstream Contract 3A flood control improvements. The Guadalupe River will then seek its equilibrium by restoring itself.

WW-14

It is true that creeks function with little or no maintenance when in a "stable state". However, most of the lower reaches of creeks within District's jurisdiction have not been in a stable state for over 100 years. Agricultural realignments, urbanization and encroachment into the adjacent areas of valley creeks have taken a definite toll on their function. With this transition, creeks have become "flood control facilities" in the fact that they must convey urban runoff which creates the "flash" flows, as well as upper watershed drainage. The District is responsible for balancing the remaining values of area creeks while protecting communities from flood damage. Engineered maintenance guidelines are used to define the limits of vegetation management necessary to provide flood protection. See also master response to geomorphology.

WW-15

The vegetation removal plans outlined in the EIR are based on historical work areas. While the work area on the document maps includes long continuous reaches of streams, work will only be performed as required by the maintenance guidelines in small portions of the work area in any given year. Large riparian trees are not targeted for removal. Work is selective to small sapling growth. On larger streams, a riparian buffer is allowed to be established along the low flow channel, while the remainder of the channel bottom is maintained within guidelines. This process has improved the riparian values on larger streams over the past ten years.

WW-16

Herbicides are not broadcast sprayed across the channel. If you have video of such activities, it would be beneficial for the District's review. On the entire area of Guadalupe River, purporting to show vegetation management work is limited to selective treatment of small sapling growth as well as stands of giant reed. Applications have historically been scheduled between the identified end of nesting season (July 1) and the identified start of anadromous fish migration (October 15). See revisions to BMP 3.10 *Conduct In-Channel Working During Dry Season.*

WW- 17

See master response regarding aquatic herbicides.

WW-18

We have no data indicating which cause of erosion is primary. Faulting, tectonic movements and landsliding are also significant causes of erosion.

WW-19

Comment noted.

WW-20

Log crib walls are considered a soft structure because they are biotechnical and allow full biotic function to be attained. In time, the logs used in crib walls will deteriorate and the bank will be protected by the vegetation that has established.

WW-21

See response to RWQ-CC-06.

WW-22

The estimate of one mile a year includes repair of new erosion sites and repair of previously repaired sites. Many of the sites along the 1650 miles of stream bank under District jurisdiction are previously disturbed sites: the District implements bank protection when the problem could cause significant damage to a property, is a public safety concern, negatively affects transportation or recreational use, negatively affects water quality or beneficial use or negatively affects riparian habitat. Also, bank protection on sensitive fisheries or riparian reaches of stream is not a part of this program and individual CEQA review and permits will be required.

WW-23

A causal analysis at each erosion site is one of the steps of designing an erosion repair and the underlying cause of the erosion is addressed if possible. These causes include downcutting channels, increased velocity at the outside of a bend, sediment deposits moving the low flow to the toe of the bank, overland flows and vegetation removal.

WW-24

Erosion is a natural process and may stem from faulting, tectonic movements and landslides. It is accelerated by human activities such as channelization, improper land use, grazing, agriculture, road and utility construction. Restoring the floodplain is outside the scope of maintenance and is considered as part of capital improvement projects. Maintenance is restricted to the existing channel conditions.

The effect of bank armoring on velocity depends on the material. Velocity varies inversely with roughness represented by the roughness coefficient n. This shows that rock riprap (n typically .030) slows the velocity of the channel as compared to the bare earth (n typically .020). A concrete repair with n typically .013 will increase the flow rate compared to bare earth. A vegetated repair may have a roughness coefficient ranging from that of rock rip rap on up to 0.20. Turbulence varies directly with roughness; that is, a highly vegetated channel will be more turbulent than a riprap or concrete channel.

WW- 25

The SMP EIR is a Program EIR intended to define the potential environmental impact of a wide range of maintenance activities that the District carries out. Mitigation for this program is spelled out in the EIR through the BMP and the compensatory mitigation. The program EIR makes it clear that certain activities are outside of the scope of the SMP, either because they are not routine maintenance or because the environmental impact of these activities may not be effectively mitigated through the BMPs and compensatory mitigation (see pages II-22 and 23 and response to comment SFT-22). Several watersheds in Santa Clara County have anadromous fisheries. The EIR identifies stream reaches which support cold water fisheries and which are used for migration by anadromous fisheries as particularly sensitive and certain types of maintenance activities in these environments are curtailed. Activities outside of the scope of the SMP would need to be subjected to separate and individual CEQA compliance by the District.

WW-26

The authors disagree. The District has a good record in identifying project impacts and mitigating those impacts. The mitigation site on Guadalupe River between Trimble Avenue and Montague Expressway was replanted in 1993 and 1994. Although flooding in spring of 1995 damaged some of the trees, subsequent volunteer plants have since established.

The design for gabion planting on the downtown Guadalupe River flood protection project is currently underway. This planting will occur above the river walk but not at the river's edge because of hydraulic concerns. Resource agencies have approved this revised mitigation plan.

In 1998, the District provided interim fish passage over the barriers at Hillsdale Avenue and downstream of the Ross Creek confluence to improve conditions in the Guadalupe River. In 2000, the District constructed a fish ladder at the Alamitos drop structure. Since these improvements were constructed salmon and steelhead have had access to the fishery habitat in the upper tributaries.

WW-27

The commenter disagrees with the conclusions in the EIR, but does not provide any rationale. The conclusions in the EIR were based on knowledge of current distributions of species within the Study Area and using significance criteria outlined in the EIR, pages IV-B-54 through -57. Impacts to 29 wildlife and 25 plant special-status species that are likely to occur in the Study Area were evaluated systematically as described in the EIR, page IV-B-63. BMPs were established to avoid and minimize impacts to special-status. The EIR acknowledges that the BMPs alone do not reduce all impacts to all special-status species to a less-than-significant level. However, the BMPs would ensure that impacts to special-status species are minimized and that no special-status species will be extirpated as a result of the implementation of the SMP. Impacts are anticipated to California red-legged frog and western pond turtle, and foraging habitat for California clapper rail and California black rail. To reduce impacts to these species to a less-than-significant level, compensatory mitigation is provided (see EIR, page IV-B-110 and SMP, Chapter 5).

Because species listed as threatened or endangered under the federal and California Endangered Species Acts may be affected directly or indirectly by the SMP, an incidental take permit will be required through consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game. Through this process, the SMP will be evaluated to ensure that the continued existence of listed species are not jeopardized. (See EIR, pages IV-B-28 and -29).

WW-28

Comment is noted. As indicated on page II-31 of the EIR, substantial construction of channels cannot be accomplished within the scope of routine maintenance as described in the EIR. The statement that such an undertaking would be major and expensive is supported by the cost of recent flood protection projects such as Calabazas Creek and Guadalupe River. Both of these examples included as one of the objectives reducing the need and cost of maintenance. Further discussion of redesign alternatives is referenced in response to WW-53.

It has never been the philosophy of the District to provide flood protection at all costs as the commenter states. The District's mission to conduct a sound water management program has been fulfilled in part by providing protection against flooding in a manner that has attempted to maintain the desired quality of life in the community. Consistent with past and current policies, it is among the District's objectives to perform in an efficient and effective manner and to protect the environment in the formulation and execution of District programs and projects. Refer to page 4.1 of the SMP for a description of the Ends Policies that apply to the development of the SMP resource protection policies. A complete list of the Board's governance policies can be found on the District's web site, www.heynoah.com.

WW- 29

The EIR assessment of geomorphology is consistent. The EIR states that the environmental setting for the SMP, which is the present baseline condition in the portion of the streams where most of the routine maintenance is done, represents substantial modification of streams and their watersheds. The result in many instances is geomorphological instability which leads to the need for routine maintenance. The most common maintenance problem is sediment deposition. Typically, this occurs where a channel undergoes a slope transition with a wide channel cross-section so that flow velocities and sediment transport capability drop abruptly. In modified channels the wide channel cross-section is intended to provide flood water conveyance.

Note that the term "geomorphological instability" refers to a channel with a tendency to change geometry over the short-term. A "stable" channel is actually dynamic and channel position will change substantially from year-to-year within the flood plain while retaining the same fundamental channel geometry. In a natural setting, streams deposits sediment at the slope transition below the foothills thus creating the vast alluvial fans on which many Santa Clara Valley cities are built. In a natural setting, sediment deposited by a flood forces the channel to change location in the flood plain. Surrounding urbanization is no longer tolerant of the channel migration and flooding associated with alluvial fan deposition. The maintenance activities described in the SMP react to the current conditions. Please refer to master response regarding geomorphology.

WW-30

See the master response regarding geomorphology.

WW- 31

Comment acknowledged. Please refer to the response to WW-29 and to the master response regarding Geomorphology.

WW-32 and 33

See the master response regarding geomorphology.

WW-34

There is little if any information available that specifically addresses the use and importance of salt and brackish marsh habitat by steelhead or chinook salmon, particularly in the South Bay. The most extensive, long-term data has been collected by the Interagency Ecological Program for the Sacramento-San Joaquin Estuary (IEP) and was recently summarized for the period 1980-1995 (Orsi 1999). The IEP sampling program involves annual sampling at a number of stations throughout San Francisco, San Pablo, and Suisun Bays and the West Delta. Sampling methods include midwater and otter trawls at open water stations, beach seining at inshore sites, and ringnets for crabs. Only a handful of steelhead (a total of 31 fish between 1980 and 1987) have been collected with the majority (26 fish) from open water midwater trawl surveys. Chinook salmon have been sampled with somewhat greater frequency but still have comprised a small portion of the catch (0.50% in beach seine samples, 0.09% in midwater trawls, and 0.02% in otter trawls). Chinook salmon were found at salinities ranging from 0-30 ppt and at all locations except the South Bay. Peak occurrence of chinook salmon in the estuary was in May and June with lesser abundance in April and July.

Some information is also available for migration of chinook salmon smolts in the Sacramento and San Joaquin Rivers and Delta. In the Central Valley, chinook salmon fry may migrate downstream shortly after emerging and rear in downstream areas prior to smoltification. Abundance of fry rearing in the Delta and Bays tends to be higher in wet years and can extend downstream into San Pablo Bay in very wet years. Smoltification is generally complete by early June and smolts appear to move directly from rearing areas to the ocean. Fish salvage at the Central Valley Project (CVP) and State Water Project (SWP) pumps in the south Delta is an indication of abundance of juvenile chinook salmon that have migrated out of upstream areas. This data shows that chinook salmon are rare in the Delta after June and indicates the most salmon have moved out of estuarine rearing areas by that time. For example, in 2000, salvage of chinook salmon at the pumping facilities peaked in February and April, declined to low levels by June and was virtually non-existent through December (Foss, 2001). Salvage of steelhead at the pumps peaked in February and declined to very low numbers by May. Similar results were obtained during monitoring in 1996 through 1999 (Foss 2000, Arnold 1999, Arnold 1998, Barrow 1997).

General life history and migratory period information is presented in the EIR in relation to sediment removal (page IV-B-85), vegetation removal (page IV-B-95), and bank protection (pages IV-B-100 to -103). The available information supports the conclusion that steelhead and chinook salmon are least likely to be present in proposed work areas during the dry season (May-October). Further, BMPs provide for avoiding and minimizing impacts on individuals of these species that may be present in project areas (page IV-B-86 to -88; IV-B-95 and -96; and IV-B-100 to -102). These measures apply in all project areas, including any that may occur in salt or brackish marsh habitat.

Foss, S. 2001. Fish Salvage Program at the SWP and CVP Facilities. Interagency Ecological Program for the Sacramento-San Joaquin Esturary Newsletter 14:2 (Spring 2001).

Foss, S. 2000. Fish Salvage Program at the SWP and CVP Facilities. Interagency Ecological Program for the Sacramento-San Joaquin Esturary Newsletter 13:2 (Spring 2000).

Arnold, J. 1999. Fish Salvage Program at the SWP and CVP Facilities. Interagency Ecological Program for the Sacramento-San Joaquin Esturary Newsletter 12:2 (Spring 1999).

Arnold, J. 1998. Fish Salvage Program at the SWP and CVP Facilities. Interagency Ecological Program for the Sacramento-San Joaquin Esturary Newsletter 11:2 (Spring 1998).

Barrow, S. 1997. Fish Salvage Program at the SWP and CVP Facilities. Interagency Ecological Program for the Sacramento-San Joaquin Esturary Newsletter 10:2 (Spring 1997).

SCVWD, 2000. Draft General Re-Evaluation & Environmental Report for Proposed Project Modifications, Guadalupe River Project, Downtown San Jose, California. Volume 2, Appendix 1, SCH#199902056.

WW-35

The importance of riparian forest, and particularly of shaded riverine aquatic habitat (SRA) to salmonids and other native species is discussed in the EIR. Riparian Forest section, pages IV-B-10 and -11. Habitat requirements of specific special-status species are discussed in the EIR, Special-Status Wildlife Section, page IV-B-39 through -53.

WW-36

Commenter states that the District should change its policy of protecting people who build in the flood plain. As described on page III-2 of the EIR, the District is responsible for providing flood protection under District Ordinance 83-2, and attempts to carry out that responsibility in a manner consistent with the District's End Policies as described on page III-4 of the EIR regarding a healthy and safe environment and enhanced quality of life.

WW-37

See response to FOG-04 concerning steelhead and chinook salmon in Guadalupe, Alamitos, and Calero Creeks and steelhead use of Mixed (3) habitat.

Pacific lamprey are present in Guadalupe River and Coyote Creek watersheds, as well as being present in Llagas and Uvas Creeks in the south county. They have potential access to all habitats accessible to steelhead (Guadalupe, Alamitos, Calero, Upper Pentitencia Creeks). In addition, they are able to ascend some barriers that steelhead cannot. They regularly ascend the spillway at Uvas Reservoir to spawn in Trout (7) habitat in Upper Uvas Creek

Several Limited (1) stream reaches that serve for steelhead migration may also serve for chinook salmon migration (Lower Los Gatos Creek, Coyote Creek). In other streams (Stevens and San Francisquito Creeks and south county streams) they do not. The habitat impacts and mitigations for steelhead and chinook migration routes would be the same. Therefore, the indication of steelhead, which are federally listed, as being present gives full protection to chinook salmon migration also.

WW-38

Introduced species are likely to dominate on and off channel percolation ponds. Portions of Guadalupe River, Coyote Creek, and Los Gatos Creek have been used for on-channel percolation ponds in the past, and permits might be sought for such purposes in the future. In the absence of percolation ponds, native fish tend to dominate. The site of former spreader dams on Los Gatos Creek is indicated as Mixed/Spawning (3), rather than Mixed Native/Introduced (2) on the map, indicating that chinook salmon spawning does occur at the site.

WW-39

Please refer to response to comment FOG-05.

WW-40

Comment noted. Entry of chinook salmon into fresh water is variable and they may spend some time in freshwater prior to spawning. The presence of chinook salmon in the river during summer months does not imply that spawning has taken place or is imminent. The majority of fish entering the Guadalupe River and Coyote Creek drainages have entered during September, October, and November as is typical of fall-run chinook. The atypical behavior of individuals is of interest but may have little significance at a population level.

WW-41

The EIR addresses impacts of stream maintenance activities on steelhead and chinook salmon and their habitat. The stream maintenance program includes sediment removal, vegetation removal, and bank protection projects. Channel velocities are influenced by channel geometry but are primarily a function of stream flow. The stream maintenance program does not involve regulation of river flows and the EIR therefore does not address the impact of flow management on in-stream fish habitat. Although the stream maintenance program has the potential to alter channel geometry, as described on pages IV-B-86 through -88, the great majority of stream maintenance activities occur in areas that do not support spawning or rearing of chinook salmon or steelhead. Chinook salmon spawning areas occur in the Guadalupe River, Los Gatos Creek, and Lower Coyote Creek (Figure IV-B-1). As presented in Table IV-B-8, only 3% of stream reaches where sediment removal activities are expected to occur are in reaches supporting chinook salmon spawning. Most of this work would be completed in lower reaches of the Guadalupe River, downstream of the majority of spawning habitat. In those limited areas where sediment removal activities occur in salmon spawning areas, the District has identified several BMPs that are intended to minimize impacts on spawning habitat and spawning gravel quality including restoration of spawning gravels and restoration of riffle and pool configuration. These are described fully on pages IV-B-86 through -88 and in the Table on pages IV-B-84 and -85.

WW-42

Temperature conditions in Santa Clara Valley streams are discussed in a general way as background description for habitat conditions for steelhead and chinook salmon. No temperature studies were completed as part of the Stream Maintenance Program EIR evaluations. Extensive temperature monitoring has been conducted as part of the environmental evaluation for the Guadalupe River Project (SCVWD 2000). These data indicate periods of time with lethal temperatures for both chinook salmon and steelhead in parts of the Guadalupe River during key life history stages. In addition, temperature monitored in this study frequently exceeds levels generally supportive of healthy salmon and steelhead populations in Central California.

WW-43

The EIR specifically addresses all species mentioned by the commenter (i.e., steelhead, chinook, red-legged frog, burrowing owl, pond turtle, clapper rail, tricolored blackbird, and snowy plover) in the Special-status Wildlife Section of the EIR, pages IV-B-39 through -53. Potential impacts to these special-status species are discussed in the Special-status Species Section of the EIR, pages IV-B-82 through -136. Because of the large number of species evaluated and because most BMPs are designed to minimize impacts at the habitat level, the species are discussed in the EIR as groups based on habitat association. Although they are discussed as groups, it is important to note that impacts to each species were evaluated independently.

Pond turtles are mobile and their locations are highly unpredictable. While the District maintains a database of known pond turtle locations, the District recognizes that pond turtles may be found in almost any stream or channel within the Study Area (EIR, pages IV-B-45 and -46). For this reason, the EIR concludes that pond turtles may be significantly impacted by the SMP because of substantial loss of habitat and direct loss of individuals (see EIR, pages IV-B-86 and -95). To mitigate for these losses, compensatory mitigation will preserve 108 acres of riparian and adjacent upland habitat associated with a minimum of two streams that are known to support red-legged frog and pond turtle (see EIR, page IV-B-110).

WW-44

The one-time accounting method for assessing impacts to stream vegetation from vegetation management and sediment removal activities is explained in detail on EIR, page IV-B-62. Vegetation management and sediment removal maintenance activities have a temporary, rather than permanent effect. Because vegetation re-grows and sediment is continuously deposited, areas require repetitive maintenance. However, since impacts are repetitive, permanent mitigation was developed. Actual impacts to vegetation will probably be less than estimated using this accounting method because some of the vegetation remains or re-establishes, providing temporary habitat for wildlife. If wildlife occupies the temporary habitat that has re-established after stream maintenance activities and the impacts in these areas have been mitigated for, the use is considered above the existing baseline conditions and impacts to these species do not require additional mitigation.

The EIR recognizes that any removal of wetland or riparian vegetation associated with the SMP is considered cumulatively significant (see EIR, pages IV-B-65 through -73 and VI-3 and -4). Several BMPs (1.13, *Prevent Scour Downstream of Sediment Removal*; 2.1, *Minimize Vegetation Removal*; and 3.6, *Remove Sediment from One Side of Large Channels in Alternate Years*) were designed to minimize these cumulative impacts, including preventing downstream scour, minimizing vegetation removal, and removing sediment from one side of large channels in alternate years to provide temporary habitat for fish and wildlife species.

Additional mitigation to compensate for cumulative effects is provided in the Compensatory Mititgation package, which includes the following 4 components: 1) 30 acres of tidal wetland restoration; 2) At least 14 acres of freshwater wetland creation; 3) Stream and watershed protection of approximately 820 to 1,080 acres; 4) Control of giant reed in 125 acres of riparian habitat. See EIR pages II-24 through -27, IV-B-8 and -57, and SMP Chapter 5.

WW-45 and WW-46

As indicated on pages IV-A-23, IV-B-65, and IV-B-70 of the EIR, the impacts associated with sediment removal and vegetation removal have been determined to be potentially significant. The referenced BMPs would reduce some of the adverse impacts. Implementation of the compensatory mitigation proposed for the SMP would further reduce the residual impacts to wetlands and instream riparian vegetation. However, as indicated in the discussion of Impacts /Bio-4, the fragmentation of wildlife habitat by stream maintenance activities over the next 20 years is considered an unavoidable and significant impact even with the implementation of the mitigation measures.

A full description of BMPs 1.13, *Prevent Scour Downstream of Sediment Removal*; 2.1, *Minimize Vegetation Removal;* and 3.6, *Remove Sediment from One Side of Large Channels in Alternate Years*, can be found in the revised BMP table. See revised BMP 3.6, *Remove Sediment from One Side of Large Channels in Alternate Years.*

WW-47

Chinook salmon do not use the lowermost, tidal, portions of Coyote Creek and the Guadalupe River for spawning because of a lack of suitable substrate for spawning. The lowermost portion of Los Gatos Creek was excluded as chinook salmon habitat because of few observations of chinook salmon spawning activity or redds downstream of Meridian Avenue. The lowermost portion of Los Gatos Creek and all of the Guadalupe River were excluded as steelhead spawning/rearing reaches because of low summer streamflows and high summer water temperatures, making significant steelhead rearing unlikely. With adult steelhead access now available upstream of the Blossom Hill Drop structure spawning steelhead should utilize Alamitos and Guadalupe Creeks, and possibly Calero Creek (Arroyo Calero).

WW-48

See responses to comments FOG-04 and WW-37.

WW-49

The EIR covers future District routine stream maintenance activities. To minimize impacts to special-status species, the EIR includes measures that would limit stream maintenance activities during periods when special-status species may be present in the area (BMPs 3.1, *Minimize Impacts to Special-status Plants and Animals Via Site Assessments and Avoidance Measures*; 3.2, *Minimize Impacts to Nesting Birds Via Site Assessments and Avoidance Measures*; 3.7, *Salvage Native Aquatic Vertebrates from Dewatered Channels*; and 3.10, *Conduct In-Channel Work During the Dry Season*). The annual work program shall be reviewed, and each site where special-status species have been found, have been known to exist in the recent past, or are likely to occur because suitable habitat exists, will be visited by a biologist or qualified personnel under the direction of a biologist, as set forth in BMP 3.1. The District shall use its GIS database to identify potential special-status plant and animal habitats. New information from pre-maintenance or on-going surveys shall be added to the District's GIS database and used for future management. All projects falling within sensitive habitats will be discussed with biological staff to identify avoidance and minimization measures. If maintenance activities are scheduled in the vicinity of extant populations, qualified personnel under the direction of a biologist will clearly identify the populations on site and stake or flag a buffer zone around the population in which activities area to be avoided. The District will develop and distribute informational pamphlets entitled "Sensitive Plants. Wildlife, and Fish at your Worksite," designed to inform staff about sensitive species and environmental protocols and procedures. In addition, stream maintenance projects in streams will be conducted outside of the migration and spawning season (generally December 15 to June 15). If fish or native aquatic vertebrates are present when maintenance operations during potential migration periods cannot be avoided, the District has provisions for maintaining passage or transport (Dryback/Fish Relocation Operation Guidelines, SMP, Appendix D).

WW-50

Impacts of vegetation management activities on anadromous salmonids is discussed on pages IV-B-95 and -96. As described on those pages, the majority of in-stream vegetation removal occurs in modified channels in lower gradient. urbanized areas used by steelhead and chinook salmon primarily as migration corridors. Effects of bank protection work on shaded riparian habitat and a mitigation program for impacts are also discussed on pages IV-B-100 to -102.

WW-51

See response to comment WW 34 and -47.

WW-52

Comment noted. The SMP incorporates annual review and reporting procedures designed to update BMPs, if necessary, to improve environmental sensitivity of the program (please see SMP pages 3-4 through 3-5). The annual "Lessons Learned" sessions, which are incorporated into the SMP, are designed to evaluate the effectiveness of the program. including the BMPs. The District will submit annual reports to the resource protection agencies, including the USACE, USFWS. CDFG. BCDC, and RWQCB, detailing the type of work, location, and size of the year's projects. Additionally, in response to public comment, the program has been modified to further reduce adverse impacts (see master response regarding alternatives). Nonetheless, as stated in the EIR, the District recognizes that some impacts from the program would remain significant even with implementation of BMPs and compensatory mitigation. See also responses to EPA-12 and RWQ-SF-27.

WW-53

As indicated on page V-1 of the EIR, redesign of existing channels and construction work to restore a stable condition are beyond the scope of routine maintenance and the proposed SMP. A discussion of design alternatives can be found beginning on page V-24 of the EIR.

WW-54

See master response regarding geomorphology.

WW-55

Commenter points out that areas have not been physically relocated from what had been floodplains of streams prior to flood protection projects. That is true. In cases where the level of flood protection meets Federal Emergency Management Administration (FEMA) criteria for probability and freeboard, it is the flood hazard designation that has been removed. The discussion of the No Work Alternative points out that this alternative would not achieve the project's main goal of maintaining streams and canals to meet their original design to provide flood protection and water supply (see Chapter 1, Section A, page 1-1 of the SMP).

The text in the first paragraph on page V-10 of the EIR is revised to read:

> The No Work Alternative would cause significant threat ~~to~~ of flooding to areas that have been removed from ~~the flood plain~~ flood hazard designation as a result of flood protection projects constructed by the District.

WW-56

Commenters suggestions are similar to the Reduced Work Alternative described on pages V-12 - 13 of the EIR and the Considerations of Geomorphology, Engineering Redesign and Watershed Approach described on pages V-24 - 26 of the EIR. The District does not have authority to control land use, and therefore cannot halt floodplain development.

WW-57

See response to comment AU-06.

WW-58

The annual $12 million to implement the Stream Maintenance Program will be funded by the existing property taxes and benefit assessments and the recently voter-approved Measure B. Measure B specifies approximately $1,950,000/year (i.e., $300,000 for sediment removal, $380,000 for maintenance of newly improved creeks, and $1,270,000 for vegetation management) for activities under the Stream Maintenance Program. Measure B implementation and effectiveness will be evaluated by an independent External Oversight Committee.

PH:SFT

PUBLIC COMMENTS DRAFT EIR HEARING
APRIL 24, 2001

MR. KEITH ANDERSON
SANTA CLARA COUNTY STREAMS FOR TOMORROW

To start off on a positive note, this is a very comprehensive project, large geographic area, very complex activities, etc. I think it is very difficult to do an environmental assessment of the impacts of such a project, but the District staff and consultant team have done a good job on the Draft EIR. I think it is a good document. We will be providing some written comments on some relatively minor recommendations for clarification, etc., but I think at this stage in the process you have a good environmental assessment in front of you. I also think that the basic approach the District has taken for the Stream Maintenance Program is a good approach; I participated in the stakeholder process and I know the evolution that this has gone through and I also have been involved in one way or another since 1993. I think it is an excellent approach and I hope that the final product is basically what is being presented to you with one exception: because of that exception (there is always a but, -1 isn't there) Streams for Tomorrow does not support the proposed preferred project. It has significant and unavoidable adverse impacts to South County wildlife habitats and populations that can be avoided by adopting an alternative project and that is the Modified Pajaro River Basin Alternative. -2 As a side note, from my perspective, these significant impacts caused by herbicide use in South County are inconsistent with the District's current role as a steward of natural resources, and are inconsistent with the principles of the recently adopted streams stewardship program. I refer to Measure B.

The preferred projects, South County or Pajaro Basin herbicide use component, would cause significant and unavoidable adverse impacts to wildlife habitats and populations. This is biological impacts No. 6 and Cindy mentioned that. The Modified Pajaro River Basin Alternative would retain, as I understand it, two of the three elements of the proposed South County herbicide use. We are not opposed to certain herbicide use in South County. For example, we do not oppose element No. 1, the herbicide use to control non-native invasive plants species. This is the giant reed and eucalytpus control.

-3 Element No. 2, the herbicide use on 157 acres of upland vegetation—this is control of vegetation on levees, benches, access roads in the channels, weeds, revegetation mitigation sites, and other in channel upland areas. It is my understanding that is included in the Modified Pajaro River Basin Alternative.

The third component of the proposed herbicide use in South County is the problem component or element. And that is to control the wetland vegetation on stream bottoms and the adjacent Riparian -4 tree growth. And that would not be included in this Modified Pajaro River Basin Alternative. The area of impact is not clear to me; there seems to be some conflicting information in the EIR and I am not sure if it is 57 acres of impact or 71 acres. But I have a dialogue going with Cindy to try and resolve that between us so I have a better understanding of it. But either 57 or 71 acres—that would be impacted by herbicide use on the uplands and the Riparian vegetation.

Now this alternative, the modified alternative, would substantially minimize the identified significant impacts associated with the preferred project South County herbicide application. In my opinion, significant biological impact No. 6 would be mitigated to a less than significant level. So here is an opportunity to address that significant and unavoidable adverse impact. And this would occur because the wetland and Riparian vegetation would continue to be controlled by hand and mechanical methods, not killed by herbicide applications. The current control effort using hand and mechanical methods is the environmentally-sensitive approach when you compare the two for vegetation control. It allows the continuance of substantial wildlife habitat as identified in the draft EIR yet allows you to address the needs for flood passage in the channels.

If the preferred project is selected, the District will have to prepare a statement of overriding considerations pursuant to CEQA, justifying why the significant and unavoidable adverse impacts of herbicide in South County streams were not avoided or minimized to a less than significant level by selecting a project alternative. This example I am giving you, that's the Modified Pajaro River Basin Alternative. The statement of overriding considerations must explain why the District is willing to accept the significant impacts of South County herbicide use on wildlife when other far less damaging methods of vegetation control exist and are included in the proposed modified Pajaro Basin alternative.

The only reason that I am aware of why the District would reject the Modified Pajaro River Basin alternative is cost. At this point in the description and the environmental assessment (that's the only reason I can think of) why you would reject this particular alternative. The switch from hand and mechanical control methods to herbicides supposedly would save the District approximately $2 million per year. That is substantial on its face. When economics such as cost savings is used as a factor to support rejecting an otherwise feasible alternative, the District must support this finding with specific data showing that the additional costs of the alternative are great enough to make it impractical to proceed with the alternative. CEQA requires substantial evidence and record and specific data to support your conclusion. -5

Again, it would be my understanding that if the District issued a statement of overriding considerations, you would probably base it on cost savings. So information on costs is extremely important in your assessment of this project proposal and choosing among the alternatives that are available and where do we find cost information? Basically, you find it on a single page in the EIR. This is the comparative Table 5-4, on Page V-23. I would like to refer to that for a moment.

-6 This gives us some cost information for the six alternatives that are presented for both the Santa Clara Basin and the Pajaro Basin. The vegetation management costs of the preferred alternative the District staff is presenting to you is estimated to be approximately $640,000 per year. For the modified Pajaro Basin alternative, the estimated cost is approximately $2.7 million. The only difference between those two alternatives, remember, is the impact and the way that you remove or control the wetland vegetation and the riparian tree vegetation—the 57 or 71 acres, whichever the correct figure is. That is the only difference between these two approaches. Yet that's over $2 million difference in costs. Based on the information currently available to me, this does not quite make sense.

-7 I have looked at cost information that the District has provided to the flood control advisory boards each fiscal year and the costs that are in this information show that you are spending between $200,000 and $260,000 per year for all vegetation control, disking, mowing, hand labor, contracting with conservation crews to go out and remove the vegetation in November–December. It is kind of hard to think that there is a cost savings of $2 million in there. It just does not reconcile. When you

PH:SFT

look at the actual maintenance budget for all maintenance activities in South County for these same years, the entire budget has been $1 million to $1.4 million. So how does this shift to herbicide use save you $2 million a year? It just does not make sense based on the information presented today. If this is an impact to 57 acres, that means that you are spending $35,000 an acre to control vegetation. I want that contract. I really want that contract. I will bid $1 million to get it done and still make money on it. So again, I believe you are going to make a decision on these alternatives looking hard at the cost comparisons. I don't think you have the appropriate information in front of you yet in the 8- draft EIR to make these cost comparisons. So I am recommending that the final EIR provide much more detailed information on how the costs are calculated. And what assumptions were used in calculating these cost estimates? If you are currently spending, let's just call it $250,000 per year for all vegetation management in South County, how does shifting to herbicides to control only one component of that vegetation save you $2 million—major concern about that. In our written comments, we will be reiterating that request for additional information on the cost estimates.

Thank you very much.

PH:PA

GLEN ROBERTS, DIRECTOR OF PUBLIC WORKS
CITY OF PALO ALTO

I would like to make a few general comments from the municipal perspective, first of all, and then a couple of specific comments relative to some City of Palo Alto concerns and interests.

First and foremost, let me start by complimenting your management, your staff, and your consultant team on this process. I was personally involved in this through the stakeholder's group for the past year and a half and it really was a very inclusive and collaborative process. As you can probably hear from two speakers tonight, perhaps even some different perspectives were brought together and allowed to work collaboratively towards this end, so it was very good and you are to be complimented on that. Thank you for that opportunity.

1- This is a much needed and long overdue effort. There is a municipal interest at stake here. There is public property and to some extent even public health and life safety issues at risk. Those are substantial issues which should not be lost in this discussion. When the District is unable to clean out your channels, it has impacts on the municipalities. When you are unable to clean out your channels, our storm drain system backs up. Our outfalls become plugged, our flap gates cannot open. The water backs up into our streets, into our neighborhoods, and, in fact, into people's homes. That has happened in Palo Alto and I believe in other municipalities as well. When you are unable to clean up your channels, downstream backwater effects are created upstream and the channels exceed their capacity due to that backwater effect. There are real intangible impacts at stake here which this program addresses and we appreciate the fact it is being addressed.

This has been the topic of discussion among municipal public works officials in various forms and groups, municipal public works officials from APWA, informal discussions between my colleagues and myself about this and there is a general strong support from that municipal public works' 2- perspective for what you are attempting to do. The year-to-year approach is no longer viable. I have personally gone with your staff to hearings at the Regional Water Quality Control Board and lobbied in support of annual permits for maintenance. Sometimes we get them; sometimes we don't. When we get them, they always come late in the season and we are extremely lucky if we can get the work

H:PA

done in the same season in which we get the permit. It is time for that pattern to cease; it is time for this master program to go into place. It is well needed.

The specific issues that I want to reference in regard to the City of Palo Alto concerns are twofold: first, a supportive compliment and secondly, a question and perhaps a need for some clarification and definition.

-3 Supportively, with regard to your mitigation measures, I particularly want to single out and compliment the selection of the Arundo removal as a very appropriate mitigation measure which actually has a double or triple benefit, if you will. Not only is it a mitigation measure for the work you are doing, but it gets rid of that invasive non-native species in other areas where it is in fact constraining capacity in the creek channels itself and destroying native habitat, particularly in regard to San Francisquito Creek. So that is just an extremely appropriate measure which works two or three ways to our benefit.

A question though and a concern if I might also with regard to the specific limits of work in the City of Palo Alto. -4 We have during this process twice in writing and multiple times verbally expressed interest in the limits of work downstream of Highway 101 in the City of Palo Alto on San Francisquito, Matadero, and Adobe Creeks. District staff has always been extremely accommodating and responsive in indicating consideration for that, but yet as I look at the final document before us tonight, in particular, on Figure 2-1, if you turn to that Limits of Work drawing and fold it out, and look at it in the very back of the document, about three or four documents back, it does not appear to address the Limits of Work downstream of Highway 101 on those three creeks. There is a (my eyes are not what they used to be, I've worn my glasses, I've tried a magnifying glass, I still can't quite get it) there does appear to be a small dot on San Francisquito Creek downstream of Highway 101 that indicates limits of work immediately adjacent but Matadero and Adobe appear perhaps to not have been addressed yet. That is a serious issue for us. I think even this Board may recall we are engaged in the middle of a joint collaborative effort to do a remediation project on Matadero and Barron. I believe last week this Board approved an amendment to a consultant contract to expand the scope of work on Matadero to look at alternatives downstream of 101, which the City of Palo Alto greatly appreciates, but the reason that is necessary is that for the past 20-25 years, there has been no maintenance sediment removal on Matadero Creek downstream of Highway 101. A riparian habitat has been created where one did not previously exist and, because of that, you find this program and mitigation of that type necessary now.

-5 Let's not repeat that mistake. Let's not put ourselves in that box again. Let's make sure this program allows us to do ongoing maintenance downstream of Highway 101 on Matadero and Adobe Creeks and include that in the program now. I would urge your consideration of that request.

Thank you.

PH:MIL

MR. MIKE MCNEELY, CITY ENGINEER
CITY OF MILPITAS

Mr. Chairman, Members of the Board, thank you for the opportunity. We were joking beforehand we always like to send the eloquent Mr. Roberts ahead of us and I would like to emphasize a lot of the things that Glen mentioned and strongly support the completion of this project and let's get on

H:MIL

-1 with it. They say that in a compromise sometimes all the parties are not entirely happy and we are on that side also. There are some elements of this program that are very costly and sometimes we wonder why, but it is a wonderful process that has fulfilled just about all of our expectations and we think that we need to get on with it and, as Glen mentioned, complete these projects in a timely -2 manner starting early in this spring and through the summer instead of continually fighting the calendar and completing maintenance work in the fall.

That is all I have to say. Thank you.

PH:SS

SIG SANCHEZ, DISTRICT BOARD OF DIRECTOR AT-LARGE

-1 Before you close the hearing, I received a call this evening from a representative of the City of Gilroy. Unfortunately, they could not be in attendance but strongly support THE project as being designed and planned and ask me to convey that message.

GREG ZLOTNICK, SCVWD BOARD OF DIRECTOR

PH:GZ

First, I did want to ask staff specifically that I am interpreting this correctly in terms of Mr. Anderson's comments. page V-11, the modified Pajaro River Basin Alternative includes the same amount of sediment removal, vegetation management, bank protection and minor activities as the -1 multiyear program which is the preferred alternative and thus it is safe to conclude as you do on the next page that the same amount of flood protection would be provided as in the preferred alternative. Is that correct? So we are going to do the same amount of work and provide the same amount of flood protection under that modified alternative that Keith talked about.

CINDY ROESSLER: *Director Zlotnick, that is correct.*

OK.

CINDY ROESSLER: *It is the same amount of work, just a different technique.*

I understand. There is the $2 million cost differential issue which is significant and which there is a question about the funding that we will get to in the written response. I am sure that Keith has written comments. The other question that I have is that it indicates that because you would not be -2 using the herbicide and you would not get that vegetative change that you talked about, that basically there would be an initial beneficial effect or an interim beneficial effect to streamside habitat because you would be trimming it back instead of killing it and there would be more cover for a longer period of time, I assume. but then when you actually go in and did something, it would be more disruptive to the resident wildlife. Is that a fair characterization of the sort of what you get and what you give up by doing that?

CINDY ROESSLER: *That is true when you compare it to the multiyear alternative.*

OK. So my question would be, consistent with the notion of nonrepetitive mitigation or impact, if -3 we went to this alternative would Mr. Anderson ultimately support and perhaps the Agency support the fact that we would be allowing the vegetation to sit longer and be more dense, I assume or what

H:GZ

have you. Would we get credit for that allowance to let it be there even though in those times where we would have to go in and take it out there would be a greater impact? I just threw that out as a question for staff to interpret because I think there is a question of essentially of what does that $2 million buy us ultimately and I would be curious about that.

Overall, I concur. I think the report was very, very good. I did not read it word for word. I got pretty close, but I would suggest that the staff investigate distributing this report to high school biology departments, and the biology departments of junior colleges in the county. I think it is a very good primer on the county's biology. I was quite impressed, was surprised it was all necessary but, I guess, was glad to see it was all there.

-4 In terms of specific questions, on the Summary on page 3 where we talk about Best Management Practices, it says that "the Best Management Practices provide mitigation." And so my question is: is it a Best Management Practice or is it, in fact, a mitigation practice. Are we going beyond requirements of what would be normally be termed Best Management Practice and we are actually getting into mitigation itself and how is that determined? You don't need to respond now; you are just gathering information, right?

-5 The other thing is on Page S4 where we talk about once the Capital Improvement Program (CIP) is completed. Maintenance at the project site will be incorporated into this plan. My question is: what assurances do we have that maintenance is going to be covered by the assurances applied to this program as it exists right now prior to knowing what the capital projects are that we are going to be doing and how we are going to be doing them? I think that needs to be somehow incorporated, if possible.

-6 On Page II-5, just a process question. In the middle of the page it says "The District has decided to provide mitigation for all impacts to stream vegetation from sediment removal and vegetation management activities to further its mission of protecting and enhancing natural resources along the streams." I don't know when the District decided to do that. First of all, the District, meaning this Board, although obviously we have our policies in place and however the language here I think is rather broad. My question would be: Are we talking about cumulatively providing mitigation for all the activity or location by location? That is very different and I would be concerned about the latter; more comfortable with the former.

-7 On Page III-18, there is a discussion of basically a Nationwide 31 and I am curious about how that is incorporated. I would like a little better explanation of that. I know that there is some further discussion later on in the document, but I would like to see some explanation of Nationwide 31's incorporation regardless, quite frankly, of the agency's opinion of the law since it is in fact the law.

-8 Following up on Mr. Roberts' comments on Page IVA-7, under the Geomorphic and Hydrologic Setting, it was interesting to find that none of the creeks in Palo Alto were mentioned as part of this setting. I don't know whether they were just left out inadvertently or we are not going to do any work there and if that is the latter, I certainly would like to see some work there. I am assuming that San Francisquito is covered by the JPA and that might have been the staff's perception. Matadero is covered by the Project we are working on long term; however, Barron and Adobe are not covered by any projects at this point so there is some question there, as Mr. Roberts raised. I would like to see some response to that.

On Page IVB-54, there is whole discussion of the significance criteria. The District recognizes that some impacts may not be at a level of significance to require mitigation. Basically, these sort of de minimus impacts that we have. And then it says to be consistent with its mission, again this mission that has been determined in this document, to protect and enhance the natural resources and to resolve controversy, since we don't like controversy, the District has decided that this Plan will nevertheless provide compensatory mitigation for those de minimus impacts. Are we going to get credit for that? Are we going to be able to bank those improvements for future work, or is it just a giveaway that we have in terms of trying to get this approved with the agencies? If that is the case, that is fine but let's be honest about what we are doing. At some point, maybe it is just an investment in better relationships with the agencies to provide flexibility in the future, which is appreciated and necessary often. -9

-10 On Page IVB-57, we get a little bit more into the discussion of Nationwide 31 and we start talking about the baseline condition. The impact evaluation does not assess biological impacts of the original construction of these projects either. Again, this is part of that Nationwide 31 discussion which is supposed to allow you to do maintenance based upon the condition when you did the project initially. I would like to see some further discussion of that.

In general, Page IVB-62, talks about the methodology of not utilizing repetitive mitigation. I think that is good; I am glad we are going in that direction.

-11 Pages V-4 and V-5 talk about how the agencies do not necessarily like Nationwide 31 and they are sort of hesitant to utilize it. That concerns me. Once again, because it is the law and we have a right to utilize that—consistent with the law.

-12 On Page V-4, the question is again, (this is in the middle of the page) it talks about the baseline and accounting and it says, again to be consistent, it is the same language, consistent with the mission, resolve controversy, provide greater assurance, the District decided to provide compensatory mitigation for wetland and riparian effects which cannot be avoided during the course of routine maintenance, which sort of obviates the need for Nationwide 31. My question is: I don't so much have a problem with doing that work; I think we want to do that kind of work, but it's how it is accounted for. Again, do we get credit for doing what we don't necessarily have to do under Nationwide permit or is this something again where we are trying really just to resolve and get away from controversy which again in some ways is a good thing. In some ways, it is a problem.

-13 One final comment on the herbicide program which was described in detail, Section II, pages 13-18. I was amazed at the level of care we utilize in handling this stuff and what we do and don't do. I was very impressed by that. I will mention that. I assume this document is part of this, right? OK.

-14 [In the Stream Maintenance Program] Page 3-4, this isn't everything. I would just suggest, it talks about a proposed project activity low impact and typically exempt from detailed environmental review. Then you are just going to sort of move on. I think this Board needs to know when an activity is undertaken that is not covered by this, where there is an expectation of further mitigation and that comes to the Board as an informational item so we are aware of that.

-15 Related to that is the annual report that you have in here that is going to all the agencies. I assume that would come to the Board, also, although it was not listed as coming to the Board as an informational item, at least.

-16 [In the Stream Maintenance Program] Page 5-2, some very good language. "The Stream Maintenance Program Compensatory Mitigation program should establish an optimal set of mitigation strategies – a combination of components that best balance opportunities, feasibility and cost- to provide maximum benefit to the natural functions of the watersheds and streams of Santa Clara County". Where did that language come from? I kind of like it but I am just curious where it came from. I don't think the Board came up with that so I am curious where it did come from.

-17 [In the Stream Maintenance Program] on Page 5-6, we talk a lot about freshwater wetlands. I was surprised to see that what I call for shorthand, maybe they are there but I just don't know it, but Sig's ponds weren't included in this. Is that different than . . . those are the different areas than those three or not? I would like an answer to that. Are those different?

CINDY ROESSLER: *Are Sig's Ponds at the treatment plant in Gilroy?*

Where are your ponds, Sig? The ones where you want to create your wetlands.

OK. There is a Coyote Lakes thing. I was just curious where those were in here. If they are or not.

They have something in here about Coyote Creek. I just want to make sure we do not lose sight of Sig's ponds.

-18 I did have a question. It says if additional freshwater wetland sites are located, then the watershed protection component of the mitigation package would be reduced. And I know you can get into a zero sum game. I am of the opinion that, frankly, we are going to lose the opportunity to provide mitigation over time because the land is just going to go away or get impacted, whatever. I would be interested in not just an automatic quid pro quo, some more here, less here. I would like to see those tradeoffs brought to the Board as part of this document in terms of maybe it is still worth moving forward on. Again, in the concept of if we are going above and beyond of what we need to do, we can bank those for future work.

-19 [In the Stream Maintenance Program] page 5-11, the Land Acquisition Program. I did not see any language in here that said it would be on a voluntary basis. If it is not going to be voluntary, I would like to see that. Otherwise, we should be explicit that it is voluntary—a voluntary program.

-20 [In the Stream Maintenance Program] page 5-20, in the Table, No. 5, where we talk about the guiding principles and specific watersheds and stream reaches, and where the most ecological function will be obtained, I appreciate that. That is also an area just as a comment that I think an environmental advisory committee of this Board could be of great use.

-21 [In the Stream Maintenance Program] page 5-22, at the top. We get into some of the controversy that was attempted to be averted. It says no consensus was reached on the level of impact of new bank protection work whether it should be considered routine stream maintenance or not. Then we get over to the mitigation. You kind of repeat that under No. 18, "all agencies encourage the District to reconsider the need for mitigation to address the impacts of the bank protection program." I am curious as to what the implication of both of those statements are for providing assurances which we want from the multiyear effort. Are we going to be covered on 9/10s of the program but, oops, bank stabilization is not covered. It doesn't seem to be the intent of this. So I am concerned about that.

-22 Finally, just a quick comment and, I think, it was made by Glen also. We have heard this before when this has come before the Board in terms of the interim. The notion that there may be delays in the permits being issued this summer based upon these documents. Those delays should be minimal at most. It seems to me with the agencies at the table on this, and the stakeholder group at the table on this. As we had our meeting last August or October, or whenever it was, as Larry said, we need to show success and I would be very concerned if we felt that we found a significant delay in getting the permits issued for this considering the participation of the agencies.

And with that, I would just compliment the staff once again for this document and for all the work that has gone in. I appreciate the comments that Keith made and I think they are legitimate in your participation with the other stakeholders. I think it was a very good part of this whole effort.

Thank you, Mr. Hearing Officer.

No further comments.

Response to comments at Public Hearing

PH:SFT-01

Comment noted. See master response regarding alternatives.

PH:SFT-02

See master response regarding alternatives and response to WW-01.

PH:SFT-03

Herbicide use in upland areas is included in the Modified Pajaro River Basin Alternative. See master response regarding alternatives.

PH:SFT-04

See SFT-07 regarding impacts in the Pajaro River Basin under the Modified Pajaro River Basin Alternative.

PH:SFT-05

See response to AU-07 and revised cost projections table.

PH:SFT-06

See response to AU-07 and revised cost projections table.

PH:SFT-07

See response to AU-07 and revised cost projections table.

PH:SFT-08

See response to AU-07 and revised cost projections table.

PH:PA-01

Comment noted.

PH:PA-02

Comment noted.

PH:PA-03

Comment noted.

PH:PA-04

See response to PA-02 and –03.

PH:PA-05

See response to PA-02 and –03

PH:MIL:01

See response to AU-07 and revised cost projections table.

PH:MIL:02

Comment noted.

PH:SS-01

Comment noted.

PH:GZ-01

The Modified Pajaro River Basin Alternative (now the Preferred Alternative) provides the same amount of flood protection as the Multi-Year Program Alternative.

PH:GZ-02

See p. V-6 of the EIR for a discussion of the immediate and noisy but short-term effects of mechanical methods of vegetation management on wildlife.

PH:GZ-03

Refer to response to SFT-11.

PH:GZ-04

The basis of the BMPs are to avoid impacts where feasible as required by CEQA, but also to be consistent with the resource protection policies in Chapter 4 of the SMP. In general, BMPs are considered to be part of the project, while mitigation measures are additional protective measures.

PH:GZ-05

See p.II-22 of the EIR for a discussion of the relationship between the SMP and Capital Improvement Projects (CIP)s. The Corps has agreed that they will include language in the permit that the intention is for the mitigation to cover all future maintenance of the same type even after expiration of the first ten years.

PH:GZ-06

The discussion on p. II-5 and at other locations in the document state that mitigation is being provided for all routine stream maintenance activities included in the program based on the projected work. The projection of work has a location-by-location element, however, the SMP is not limited to working exactly at those projected locations. See EIR pp. II-29 for additional discussion of work projections and planning horizons.

PH:GZ-07

The Corps is expected to issue an individual ten-year permit for the SMP and not rely on Nationwide Permit 31 or its conditions.

PH:GZ-08

See response to PA-02 and –03.

PH:GZ-09

Impacts and mitigation are evaluated on a program basis and not designated separately by type of activity and impact, therefore no banking for *de minimus* impacts is proposed. The impact analysis focuses on the impacts that cumulatively contribute to a level of significance rather than those with a *de minimus* effect such as some of the minor work activities (graffiti removal, trimming overhanging branches, etc).

PH:GZ-10

See response to PH:GZ-07. As stated on p. II-30 of the EIR, the EIR does not review the environmental effect or provide mitigation for the original construction of the facilities.

PH:GZ-11

Comment noted.

PH:GZ-12

See response to PH:GZ-07.

PH:GZ-13

Pages II-12 through II-17 list precautions the District takes when using herbicides.

PH:GZ-14

Activities included in the MMRP would become mitigation requirements and are likely to be included as permit conditions. Any enhancement work beyond these mitigation requirements would be brought to the District Board for their approval.

PH:GZ-15

See response to EPA-12

PH:GZ-16

The language is the District staff's proposed definition of the overall objective of this aspect of the program.

PH:GZ-17

Freshwater wetland creation at Coyote Lakes Park Site 10A is included in the mitigation program. See also response to SFT-25.

PH:GZ-18

See discussion of the Maintenance Baseline on pp. V-2 through V-4 of the EIR.

PH:GZ-19

The MMRP includes language specifying that the Stream and Watershed Protection mitigation element is voluntary.

PH:GZ-20

Comment noted.

PH:GZ-21

Revisions have been made to the bank protection program in response to agency comments.

PH:GZ-22

Comment noted.

Santa Clara Valley Water District

FINAL EIR

LIST OF REVISIONS TO EIR

August 21, 2001

II.B. LIST OF REVISIONS TO EIR DOCUMENT

Revisions to the EIR Document are indicated below. These are organized by page numbers as they appeared in the Draft EIR. Revisions to EIR Tables and Figures are attached at the end of this section.

P. S-2, paragraph six

Bank repairs may take several forms from installing "hard" structures (e.g., rock blanket, concrete, sack concrete, gabions) to "soft" structures (e.g., willow brush mattresses, log crib walls, pole plantings) or a combination of hard and soft structures. An important feature of the SMP is a programmatic approach to impact assessment and mitigation at bank protection sites that takes into account fisheries and riparian resources values (SMP Appendix E). The District will install no more than ~~50%~~ ½ mile on an average annual basis of future bank protection projects under the SMP as impervious hardscape.

P. S-5, paragraph six

B) ~~Hardscape installation for bank protection has the potential to reduce riparian vegetation functions and values and associated wildlife and fisheries habitat. Placement of hardscape is a permanent change that can contribute to the increasing fragmentation of the natural bank landscape, which can affect wildlife that depend on stream corridors. Although implementation of the BMPs and programmatic mitigation (SMP Appendix E) would reduce the magnitude of impacts, there would likely be residual unmitigated impacts is some watersheds. The Cumulative impacts from bank protection would thus remain significant and unavoidable (Impact Bio 5).~~

P. S-6, paragraph three

Most sediment removal and vegetation management activities repeatedly take place on the same reaches of channels, in places most affected by past urbanization and channel alteration. As described above, the removal of wetland or riparian vegetation associated with the SMP is considered cumulatively significant. ~~The placement of additional hardscape within stretches of vegetated channel may also contribute to significant cumulative impacts in some watersheds over the years.~~

P. S-8, Table S-1 revised (see revised table)

P. II-7, description under photo

The decision to remove sediment from a particular reach in a particular year is based on the ~~sediment history~~ design requirements, flood concern, workload of the District ~~and~~ cost of the project. The District's Sediment Removal Program is designed to restore the ability of creeks to carry stormwater while protecting adjacent property from flooding.

P. II-8 through II-18

3. Vegetation Management

Management of vegetation in and adjacent to creeks and canals is necessary to maintain the ability of channels to function as flood protection facilities and canals to transport water. Dense vegetation can adversely affect the ability of the channel to contain the flow of flood waters for which it was designed. Therefore, most flood protection facilities require some type of periodic vegetation control. Depending on the original design and the characteristics of the channel, the frequency of vegetation management varies from annually to every few years. Revised Figure II-3 shows the Projected Channel Vegetation Work Areas. Revised Table II-4 lists the extent of projected work.

Vegetation management for environmental purposes includes control of invasive, non-native plants. The District also uses vegetation management to control weeds at revegetation sites to increase the number of native trees and shrubs which survive and to more quickly establish a self-sustaining plant community which provides wildlife habitat.

The District manages vegetation for other purposes including the protection of levees, and concrete linings from plant roots; meeting local fire codes requiring the control of combustible weeds and grasses; providing visual clearance to inspect the condition of a facility; and providing access along maintenance roads.

Over the past 30 years, the District has continually revised vegetation management approaches on District facilities. The three basic methods of vegetation management are: hand removal (chain saws, weed-eaters, etc.); mechanical (mowing and discing); and chemical control through the use of herbicides. A method or combination of methods is chosen for each site depending on the maintenance requirements of the facility. Efficiency, economics and the protection of public health and environmental resources are all considered in the selection of methods.

Some green waste is mulched and stored for later use at a District property near Camden and Meridian Avenue in south San Jose. The balance is delivered to an area landfill that composts green waste. Tree logs are occasionally reused as "root wads", in order to create a woody debris habitat for aquatic species. This is done on a project-specific basis, and there is no location where logs are stored.

a. In-channel Vegetation Management

In-channel vegetation management occurs on the channel bottom of the creek or canal where seasonal aquatic conditions can create conditions suitable for wetland or riparian vegetation. Portions of the channel above the bottom, such as benches or channel banks or slopes, which do not support seasonal aquatic conditions are not included as part of in-channel vegetation management (see Upland Vegetation Management below). The 2 types of in-channel vegetation management (also called channel vegetation management) are herbicide application and hand removal of vegetation. Herbicide use is described in more detail in the "Herbicides Used" section below.

~~Hand removal of vegetation is undertaken in a few locations where it is not possible to access the area with spray equipment.~~ Weeds, shrubs and trees are removed by the hand removal method where it is not possible to access the area with spray or mowing equipment. Trees with a trunk diameter up to 6" dbh are removed by the hand removal technique, although the actual number of trees removed by this method is very limited. In some cases, the vegetation is sprayed with herbicides, and then approximately 6 months later, the dead material is removed by hand removal methods. This latter category of work is referred to as follow-up hand removal. Follow-up hand removal of dead vegetation is only necessary when herbicide spraying is new to an area and there is a large volume of vegetation created in the first year or two. In subsequent years, the amount of vegetative regrowth is reduced and follow-up hand removal is necessary much less frequently.

b. Upland Vegetation Management

Upland vegetation management occurs on upland areas associated with creeks and canals including all land above the channel bottom such as the levee or bank top and slopes, benches and maintenance roads inside the levee, and adjacent land outside the levee. These upland areas are not seasonally inundated by water so as to create conditions for wetlands, and are vegetated with upland plants, primarily annual grasses or shrubs. The five types of vegetation management in upland areas are discing, mowing, herbicide application, hand removal, and removal of overhanging growth.

Upland discing occurs on upland parcels outside of the streambanks and is conducted to create firebreaks. Upland mowing consists of operating a flail mower to eliminate or reduce grasses that would cause a fire hazard during the summer. Mowing can occur from one to three times annually at each location, usually between May and October. Mowing is conducted on the inside slope of some levees or streambanks.

Upland herbicide spraying is used on levees, unpaved maintenance roads, and along some property lines. On levees, herbicides are used primarily to keep woody vegetation and broadleaf weeds from becoming established where they will interfere with flood flow capacity, damage the levees, or hinder their inspection. Weeds and grasses are sprayed on maintenance roads to clearly define and keep open the access route. Herbicide spraying along property lines assists in establishing a firebreak. Pre- and post-emergent herbicides are sprayed from a truck-mounted rig or by a controlled drop applicator.

Hand removal of vegetation is conducted in upland areas where mowers cannot access, and herbicides are either not practical due to steep terrain or not allowed. Hand removal of vegetation is generally used in upland areas along property lines to establish fire breaks. Removal of overhanging growth consists of pruning trees branches that impede access roads or hang over fence lines.

c. Extent of Vegetation Management Work

The frequency of vegetation management activities varies from semiannually to once every several years, depending on the method used. Generally, ~~channel herbicide and channel~~

~~hand removal of vegetation are~~ vegetation management in channels is conducted once every year. Channel herbicide work is conducted throughout the summer dry season whereas channel hand removal is conducted near the end of the growing season. Seasons of work for vegetation management are generally undertaken in the following time periods. Some adjustments to these time periods can occur on some project sites where provisions regarding the protection of nesting birds and anadromous fish are followed as provided in BMPs 3.2 and 3.10. Herbicide treatment is undertaken in the channel from July 1 through October 15. Upland herbicide work is undertaken from October 15 through June 30. Removal of woody saplings by hand is undertaken July 1 through March 1. Hand removal of herbaceous wetland vegetation is undertaken in November and December.

Vegetation management occurs in creeks, canals, and adjacent uplands. On average, vegetation management work is annually performed on approximately 4,000 acres. Within this larger work area, the targeted treatment area consists of approximately 2,000 acres. These totals include the following approximate levels of activity:

- 923 acres of vegetation management work is conducted in 222 miles of stream channels with 132 acres of the total actually receiving treatment (585 work acres or 75 acres of treated area on 166 miles in the Santa Clara Basin, and 338 work acres or 57 acres of treated area and 56 miles in the Pajaro River Basin);

- 23 acres on which vegetation management work is conducted on 27 miles of canals with 6 acres of the total actually receiving treatment; and

- 3,021 acres of uplands on which vegetation management work is performed, with 1,885 acres actually receiving treatment. Upland vegetation management is outside of the area of inundation, and generally has a buffer of grass or vegetation on the slopes between the right-of-way and the stream.

Vegetation management activities are consistent from year-to-year. Slight variations in flood protection activities occur due to weather patterns. For example, historically, increases in some work activities have occurred during drought years, with decreases in some activities occurring during flood years. This is primarily due to the scouring effects of flood flows cleaning out areas of vegetation. Right-of-way activities remain constant regardless of these weather patterns. Revegetation maintenance reduces 3 to 5 years after initial installation of a revegetation site.

d. Herbicides Used

Herbicides often are more effective at controlling vegetation than mechanical or hand removal methods. This is because of the ability of the herbicide chemicals to spread into and damage the roots of the target plants, thus preventing resprouting. When treated with mechanical or hand methods, some woody plants, such as willows, will resprout with multiple stems. The multiple sprouts result in a greater flood protection problem and require annual control. With herbicides, annual retreatment is often necessary, but the treatment area is greatly reduced, as only a small percentage of regrowth will occur. As a result, the SMP would continue to use herbicides as the primary method by which vegetation is ~~controlled in channels and on stream banks~~ managed in the

Santa Clara Basin. Because of concerns regarding the gradual environmental change to wetlands, herbicide use in the Pajaro River Basin will be limited to the following situations: upland areas including channel banks, levee slopes, maintenance roads and fire breaks above the channel bottom; and upland and channel bottom areas for the control of non-native invasive plants.

Herbicides are not broadcast sprayed across the channel, but are selectively sprayed at the herbacious or woody plants targeted for removal by the design parameters of each particular stream reach. In streambeds where the removal of woody plants is required, only saplings no greater than 2" in diameter at breast height (dbh) are removed in the target area. In upland areas, herbicides are sprayed on maintenance roads to provide a clear access area and on levee slopes to eliminate broadleaf weeds.

The District staff routinely reviews new and changed herbicide formulations and changed label limitations. New products are selected and old products are discontinued due to the changing availability and suitability of the products for District use. The District uses criteria for product selection that minimize worker and public health risk and avoids environmental impact. The District will not use herbicides that are:

1. designated as a restricted material by the United States Environmental Protection Agency (EPA) based on toxicity or environmental effect,

2. on California Department of Pesticide Regulation (CDPR) "list A" for demonstrated ground water contamination.

A variety of sources of information are available to instruct the District in its choice of herbicides. A literature review was conducted for the SMP Program EIR, attached as Appendix H, District Use Pesticide Literature Review. The literature review presents use, health and environmental information about the principal herbicide products that the District currently uses. In the future, new products will be subjected to a similar review and that information will be used, along with general product information and site-specific conditions to determine whether and how a product should be used.

The District uses herbicides according to the label directions and for uses approved by the EPA and the CDPR. Currently, the primary herbicide which the District uses to control in-channel vegetation is glyphosate, a nonselective broad spectrum herbicide. Glyphosate products include Monsanto's Roundup® Pro and Monsanto's Aquamaster® (an aquatic formulation formerly marketed as Rodeo®). Aquamaster® is approved for use on and near open water, whereas Roundup® Pro is not approved for application directly in water or to areas where surface water is present. Roundup® Pro contains glyphosate, a surfactant, and water. Surfactants aid the ability of an herbicide to penetrate the surface of the vegetation. Aquamaster® and Rodeo® contain glyphosate and water without a surfactant. The District generally adds the surfactants R-11® or Target Pro-Spreader when using either Aquamaster® or Rodeo®.

Pre-emergent herbicides control vegetation on levees and access roads by preventing the germination of weed seeds. The District uses a range of pre-emergent herbicides, including pendimethalin and chlorsulfuron.

The CDRP has recently proposed new restrictions on use of certain pre-emergent herbicides including several which the District uses (sulfometuron-methly, chlorsulfuron, oryzalin and isoxaben). These proposed restrictions are intended to minimize potential ground and surface water contamination. The District is currently reviewing the recent proposal and will determine whether its Herbicide Program will need to be adjusted. See chapter IV-D Hazards, Public Health and Safety for more information. Herbicides which are used by the District for routine maintenance in channel and upland areas are shown in Revised **Table II-5.**

e. ~~Herbicide Use in South County~~ Vegetation Management in the Pajaro River Basin

The SMP includes the limited ~~reinstatement of the~~ use of herbicides as part of the Vegetation Management Program in the Pajaro River Basin. Herbicides are currently used as part of the Vegetation Management Program in the Santa Clara Basin, but their use was discontinued in the Pajaro River Basin (South County) at the direction of the District Board in 1974 because of complaints regarding drifting of herbicides into agricultural fields. In 1979, the District considered reinstating a Herbicide Program in the Pajaro River Basin. At that time, there was a general concern in the community over the use of herbicides, particularly the use of the herbicide 2,4-D and after public hearings, the District decided not to reinstate the use of herbicides in the Pajaro River Basin. As a result, the use of herbicides was also ~~excluded~~ limited on mitigation plantings of the new federally sponsored flood protection projects on Llagas Creek in the Pajaro River Basin.

Since that time, the District has revised its Herbicide Program to address environmental, health risk and public safety concerns, but at the same time recognize that herbicides are a cost effective means for maintaining flood protection and water supply facilities. Many of the improvements made to the District's Herbicide Program are described below:

- In 1980, the District discontinued the use of the herbicide 2,4-D.
- In 1986, the District switched to using herbicides in the sulfonylurea family which are applied at rates of ounces per acre rather than previous herbicides which were applied at rates of pounds per acre. This step not only reduced the overall amount of herbicides being applied throughout the County but also relied on using herbicides with a lower toxicity.
- In 1988, the District went beyond State requirements and required all District employees who handle pesticides to be certified as a Qualified Applicators by the CDPR. As Qualified Applicators, these employees are trained on pesticide laws and regulations, safety, and application methods, and are required to receive annual training to keep updated in this field.
- Likewise, even before State requirements, the District required that a District Pest Control Advisor (PCA) prepare a pesticide use recommendation for any use of herbicide on District facilities. For the District's purposes, PCAs are required to have a relevant

Bachelors degree, be trained in integrated pest management and groundwater, and continue to receive 40 hours of relevant training every two years.

- At the District, the PCA is required to conduct a field survey to assess the site conditions, types of weeds and non-target plants, surrounding land uses, and potential wildlife use prior to writing a pesticide use recommendation. This information is used to make a recommendation with detailed instructions to the applicator regarding the type of herbicide, rate, equipment, treatment area identified on a map, target vegetation, vegetation to protect, and any special instructions relevant to the site and treatment.

- Certain types of herbicides were found as contaminants in groundwater in California's Central Valley. Although no restrictions were placed by the state on their use in Santa Clara County or on soil types found in Santa Clara County, the District voluntarily discontinued the use of certain pre-emergent herbicides on District facilities in 1993 to avoid any potential problems with groundwater. This practice continues today. PCA's receive groundwater training every two years from the CDPR and receive routine updates in changes to the regulations. Though none of the regulations currently apply to this county, the District discontinues use of products that are known groundwater contaminants in other areas of the state.

- In 1994, the District voluntarily eliminated the use of residual pre-emergent herbicides on our groundwater recharge facilities. Today, only herbicides that are registered for use in aquatic areas are used at these locations.

- In 1996, the District retrofitted its spray trucks to include the Patchen WeedSeeker. This device utilizes a light sensor attached to the front of the spray equipment that detects the presence of chlorophyll (and therefore living plants) and controls individual spray heads. Instead of spraying the entire width of a facility as the spray truck passes over it, individual spray heads are turned on only as they pass over vegetated areas. This eliminates the treatment of bare ground and reduces the amount of herbicide applied by 20 to 90 percent. This equipment is primarily limited to use on flat areas where all vegetation needs to be controlled, such as maintenance roads.

[Note: See Revised Tables II-4, Extent of Projected Vegetation Management and II-5, ~~Existing~~ Projected Annual Herbicide Use, in the Revised EIR Tables section.]

~~As a result of these improvements, the District is now proposing that herbicide use be reinstated in the Pajaro River Basin. Herbicides would be used on approximately 56 miles of channel in the Pajaro River Basin, 11 miles of which would be done in conjunction with sediment removal. Implementing this change would require the following actions:~~

- ~~The District's Board will need to adopt implementation of the SMP, changing the maintenance practices in the Pajaro River Basin to include herbicides as a routine maintenance tool.~~

- ~~The maintenance documents for the federally sponsored Llagas Flood Protection Projects (PL-566 projects) will require amendment by the federal sponsoring agency, Natural Resources Conservation Service (NRCS), to include this activity.~~

~~Staff has been working with the Board and the NRCS toward the implementation of this change. Both the Board and the NRCS agree this is a beneficial change.~~

~~Initial removal of trees in Llagas Creek from approximately 600 feet downstream of Highway 152 down to the confluence with the Pajaro River is not considered routine maintenance and will require separate environmental review. See Section II.C.7. Activities Not Included in SMP, c Non SMP Maintenance Projects, Item 3.~~

Herbicide use in the Pajaro River Basin will be limited to the following situations: upland areas including channel banks, levee slopes, maintenance roads and fire breaks above the channel bottom; and upland and channel bottom areas for the control of non-native invasive plants.

Historically, routine vegetation management has been limited at the following locations in the Pajaro River Basin: Llagas Creek from Chesbro Reservoir to Machado Creek, Llagas Creek from Hayes Creek to Church Avenue, Jones Creek and Uvas-Carnadero Creek. Work in these areas under the SMP will continue to be performed as described in the maintenance guidelines for each facility and as described in the engineering guidelines for improved facilities. Vegetation management in these areas will continue to be limited to the control of nonnative invasive species and the hand removal of woody saplings less than 2 inches in dbh which occur no closer than 20 feet apart.

P. II-20 , first and second paragraph

~~Bank Protection Techniques That Tend To Limit Biotic Potential:~~

~~Gabions~~
~~Rock blanket (includes larger rip-rap with small rock fill)~~
~~Sacked concrete~~
~~Articulated concrete mat~~
~~Synthetic cellular confinement~~

~~Bank Protection Techniques That Tend To Retain Biotic Potential:~~

~~Large boulder revetment~~
~~Root wads and boulders~~
~~Log crib walls~~
~~Concrete crib walls~~
~~Organic surface matting~~
~~Compacted earth fill~~

Based on ~~15~~ 13 years of historical records, the District estimates that an average of roughly one linear mile of stream banks may be repaired annually. Many erosion sites are small and are not easily predicted. The quantity and location of bank protection activities varies greatly from year-to year, based on watershed conditions (heavy rains often lead to more work in the following year), degree of safety hazard, work load, budget, and quantity of other priority work to be done in a given year. The description of historical bank protection in the SMP shows that a greater concentration of bank protection occurs in cities and semi-rural foothills of the Santa Clara Valley. Actual future bank protection work could potentially be done anywhere it is needed within District jurisdiction.

P. II-23, second paragraph

2. **Hardscape bank protection projects which ~~limit~~ reduce or eliminate biotic potential and would occur in high quality fisheries habitat or existing high quality riparian habitat. Refer ~~to Table II-8, Bank Protection: In-stream Impact and Mitigation, Table II-9, Bank Protection: Stream-side Impact and Mitigation and~~ to Appendix E of the SMP for further definition of those bank protection projects which are not covered by the SMP.**

P. II-23, third paragraph

3. ~~Initial removal~~ Any sediment removal, wetland vegetation control, or removal of in-channel trees ~~of in-channel willow trees and other trees~~ in Llagas Creek downstream of ~~Luchessa Avenue (which is approximately 600 feet downstream of~~ Highway 152~~)~~ to the confluence with the Pajaro River and the Pajaro River within Santa Clara County. This section of Llagas Creek not been regularly maintained as provided for in the original flood protection project design (co-sponsored by the NCRS under Public Law 566) over the past 4 to 5 years because of sighting of a nesting pair of Least Bells vireo and for other reasons. In the meantime, young trees have developed substantial growth in this section of the creek and their removal has the potential for environmental effects not within the scope of vegetation management reviewed under the SMP. Maintenance work in this section of Llagas and the Pajaro River are not considered routine until the status of the Least Bells vireo at this location is determined and a plan for future maintenance developed. At that time, future routine maintenance will be evaluated under a new or revised CEQA evaluation. Control of giant reed on the pajaro River and Llgas Creek is included in the SMP. ~~For this section of Llagas Creek, the District will continue to remove trees less than 2" dbh as routine stream maintenance. Removal of trees greater than 2" dbh, as necessary to restore this section of Llagas Creek to its original design, is not considered routine maintenance and will require separate environmental review. Once this section, is restored, its subsequent routine maintenance would be covered by the SMP.~~

P. II-26, Table II-8, In-Stream Impact and Mitigation Matrix (See revised table in Appendix E of the SMP)

P. II-27, Table II-9, Bank Protection: Stream-side Impact and Mitigation Matrix (See revised table in Appendix E of the SMP)

P. II-30, second paragraph

The projections for future work under the SMP is based on analysis of historical data going back to 1977. All forms of maintenance show a consistent pattern, however projections of future stream maintenance activities for the SMP and Program EIR cannot represent the exact extent of work which will occur. Actual stream maintenance activities can vary from year-to-year. There may be some future routine maintenance activities which are consistent with the descriptions of work and impacts overall but which vary in location from the District's projection of work areas. Maintenance at such sites is still included in the program as long as it does not result in significant environmental effects substantially different than those evaluated for the Program as a whole. Work is considered included in the SMP if similar work has been performed historically at that location, the work is consistent with the District's Maintenance Guidelines, or the work is needed to maintain the flood conveyance capacity but does not increase the designed flood conveyance capacity. Based on annual reporting, the cumulative extent of maintenance work for sediment removal, channel hand and channel herbicide forms of vegetation management should not exceed the length amounts shown in revised Tables II-3 and II-4 by basin in order to be consistent with the environmental evaluation and mitigation provided under the SMP.

P. III-3, Table III-2, Upland Vegetation Management column for RWQCB-Section 401:

~~No.~~ Yes, for mowing, hand removal, and herbicide spraying activities in upland areas that may promote soil erosion, increase sediment loading in runoff, and affect water quality. Total maximum daily load (TMDL) documents will assess impacts to impaired surface waters from these activities. Impaired surface waters include Llagas Creek and the Pajaro River.

P. III-9, third paragraph

The District is currently negotiating a new MOU ~~planning to negotiate revisions to these MOUs~~ to cover the relevant activities and locations of work in the Stream Maintenance Program. As a basis for the negotiations, the District has submitted the Joint Aquatic Resource Permit Application for the San Francisco Bay Area (JARPA) ~~and is requesting the CDFG approval for the SMP be granted for a period of 10 years.~~ This new MOU will be for a period of five years. At the end of five years, either a new MOU will be executed by CDFG or the existing MOU will be renewed for another five years, to coincide with the length of the U.S. Army Corps of Engineers permit for this project.

P. III-14, first and second paragraphs

Impaired waterbodies in Santa Clara County include:

- All San Francisco Bay Segments—mercury, exotic species, PCBs, diazinon, selenium, chlordane, DDT, dieldrin, furans and dioxins
- South San Francisco Bay—copper, nickel
- SF Bay urban creeks—diazinon
- Guadalupe Watershed—mercury
- San Fransquito Creek—siltation
- Llagas Creek—siltation, nutrients ~~sediment~~
- Pajaro River—siltation ~~sediment~~, nutrients, metals, grease, oil and pesticides

P. III-29, first paragraph

Relevance to the Proposed Program: *Implementation measures are listed in the General Plan to mitigate for impacts caused by new development upstream and upslope of the channels. The General Plan identified participation in the National Flood Insurance Program, and maps released by the Federal Insurance Administration support the contention that the present condition of the stream channels can carry the runoff from the "design flood" without adversely affecting the City. The proposed Program would ~~preserve existing~~ provide design levels of flood protection for each stream. The General Plan identifies specific goals related to the District, for water quality, bank stability, and habitat conservation/enhancement. The Stream Maintenance Program complements and supports these goals.*

P. III-66, add to end of page

4. San Francisquito Creek Joint Powers Authority. **District Urban Runoff Program (District Project No. 007902)**

The San Francisquito Creek Joint Powers Authority (JPA) consists of 5 member agencies who have adopted a joint powers agreement regarding the protection and maintenance of San Francisquito Creek and its watershed. The purposes of the JPA are to facilitate and perform bank protection and creek maintenance, plan flood control measures, preserve and enhance the environmental values, and coordinate emergency response on San Francisquito Creek. The member agencies are the cities of Palo Alto, Menlo Park and East Palo Alto, the Santa Clara Valley Water District, and the San Mateo County Flood Control District. The JPA is currently coordinating with the District on flood control planning efforts, maintenance efforts, TMDL permitting, and is a participant in the WMI process.

The Corps and San Francisquito Creek Coordinated Resource Management and Planning Group also participate with the JPA on these and other associated projects on San Francisquito Creek. The San Francisquito CRMP prepared a Draft Watershed Management Plan in 1997, and a Reconnaissance Investigation Report of San Francisquito Creek in 1998. In 2000, a San Francisquito Creek Bank Stabilization and Revegetation Master Plan Report was completed by the members of the JPA (prior to formation of the JPA). Business, environmental and other interest groups are also active participants in the JPA efforts

5. Pajaro River Watershed Flood Prevention Authority. **District Urban Runoff Program (District Project No. 007902)**

The Pajaro River Joint Powers Authority, Corps and other agencies and organizations are coordinating a watershed management plan and feasibility study to remedy water quality, flood damage and other problems in the Pajaro River Basin. A Final Reconnaissance Report and Draft Project Management Plan is due to be completed by the Corps in 2001.

Participants include Santa Cruz, San Benito, Santa Clara and Monterey Counties, San Benito County Water District, Monterey County Water Resources Agency, Santa Cruz Zone 7 Flood Control District, and the Santa Clara Valley Water District. Business, environmental and other interest groups are also active participants in the basin study efforts.

P. IV-A-24, last paragraph and P. IV-A-25, first paragraph

In many locations vegetation management both from herbicide applications and manual methods is consistent and routine; these areas are less likely to experience this effect. Creek reaches which have not undergone routine vegetation maintenance~~, or reaches where the vegetation control system changes~~ may have greater impact potential, because they may have more trapped sediment within the vegetation. ~~This effect could occur in the southern portions of the County that will be switching from mechanical to herbicide vegetation management.~~

P. IV-A-26, fifth paragraph

Mitigation. Bank stabilization site design will assess hydraulic effects immediately upstream and downstream of the work area. If the hardscape revetment would cause significant increase in erosion potential, downstream energy dissipation features such as pools or grade control structures would be considered in the design. In some instances, ~~proactive~~ protection of downstream areas would include, but are not limited to, coir logs, riparian enhancement planting, strategic placement of rock, and flow deflectors.

P. IV-A-28, second paragraph

Other District activities affect channels, as defined in Chapter II, Program Description. Capital Improvement Projects (CIP), such as construction to provide increased flood capacity on a certain reach of stream, undergo a separate engineering design and environmental review. As set forth in the SMP, the CIP must include an assessment of the maintenance implications of the new channel design ~~based on an analysis of the hydraulics and fluvial geomorphology of the reaches up and downstream~~ using appropriate methods and tools. This process is intended to minimize adverse cumulative effects on channel stability and the maintenance obligation of the District.

P. IV-B-1, first paragraph

District activities under the SMP would affect salt and brackish marsh habitat in tidal areas and freshwater wetland, riparian forest and woodland, ruderal/non-native grassland, and open water habitat in non-tidal areas. The District's proposed 20 year work program would temporarily remove an estimated cumulative total of ~~146~~ 136 **acres of jurisdictional wetlands: 30 acres in tidal areas, and ~~116~~** 106 **acres in non-tidal areas. Implementation of vegetation management under the SMP would also remove an estimated cumulative total of ~~78~~** 66 **acres of in-stream woody riparian vegetation. An additional, unquantified amount of riparian vegetation would be removed for bank protection, which will impact approximately one linear mile of bank per year. The direct and cumulative impacts of sediment removal, vegetation management, and bank protection would be mitigated by implementing BMPs and providing compensatory mitigation. Compensatory mitigation would include tidal wetland restoration, freshwater wetland creation, stream and watershed protection, and control of giant reed.**

P. IV-B-28, third paragraph

Pursuant to the ESA, the USFWS and NMFS have regulatory authority over projects that may affect the continued existence of federally-listed species. Because the SMP would require an U.S. Army Corps of Engineers (USACE) Section 404 permit for wetland fill and take of federally-listed species could result, an interagency consultation between USACE and both USFWS and NMFS under Section 7 of the ESA would be required.

P. IV-B-29, third paragraph

For species that are listed under both the ESA and CESA, take authorization under Section 7 of ESA could also suffice for take authorization under CESA, if CDFG finds that the federal permit adequately protects the species. In this case, the District would need to obtain a permit under Section 2080.1(a). This permit would state CDFG concurrence with the measures in the federal Biological Opinion. . . .

P. IV-B-29 (after the third paragraph)

California Fish and Game Code

Species designated as Fully Protected under the Fish and Game Code may not be taken or possessed at any time (Sections 3511, 4700, 5050, 5515). The potential of Fully Protected species to be present within the District's jurisdiction would require an agreement under Section 1802 to prevent take.

P. IV-B-57, third paragraph

The assessment of impacts from the SMP are limited to an evaluation of the changes the SMP could cause in the physical environment from the current baseline condition. In the impact discussion below, ~~three~~ two **general categories of changes are identified: those which will be caused by continuing**

maintenance over an additional period of 20 years, and areas included in the program where routine maintenance has not occurred on a frequent basis in the past~~, and the resumption of the use of herbicides in the Santa Clara Basin.~~ This impact evaluation does not assess the biological impacts of the original construction of the flood protection projects, nor of prior, longstanding maintenance. Rather, it evaluates the effect of continuing the existing maintenance practices, with some modification in area ~~and methodology~~, in a new program approach for a length of 20 years.

P. IV-B-57, fourth paragraph

The SMP includes an extensive array of BMPs (see SMP Appendix ~~H~~ G)...

P. IV-B-61, last paragraph

~~Projected vegetation management areas were refined to include the Pajaro River Basin areas where herbicides are not currently used, but are proposed for herbicide treatment as part of the program. For those areas, future herbicide use was projected based upon the area of existing hand removal and mowing operations and known target vegetation.~~

PP. IV-B-65 through -67

Impact Bio-1: Sediment removal and vegetation management would impact in-stream wetland and riparian vegetation (Criterion Bio-1).

Implementation of the program would cause temporary but repetitive impacts to ~~116~~ 106 acres of freshwater wetlands, 30 acres of tidal wetlands, and ~~78~~ 66 acres of in-stream riparian vegetation due to sediment removal and vegetation management in stream channels. Concrete-lined channels are included in these projections as well as earthen channels. Seven of the ~~116~~ 106 acres of freshwater wetlands occur in water delivery canals. Refer to Revised Table B-IV-7 for a summary of vegetation impacts and Table II-4 for a breakdown of vegetation impacts by work activity type. Figure IV-B-13 shows the location of projected impacts to stream vegetation. As described in the introduction to the significance criteria for this chapter, any removal of wetland or riparian vegetation from sediment removal or vegetation management activities is considered cumulatively significant for the purposes of the SMP. These impact acres are based on the one-time accounting method described above and on the implementation of the following BMPs, which would reduce the impacts of removing wetland and in-stream riparian vegetation:

1.13	Prevent Scour Downstream of Sediment Removal
2.1	Minimize vegetation removal
3.6	Remove Sediment from One Side of Large Channels in Alternate Years

Implementation of the BMPs referenced above would reduce the adverse impacts of the SMP caused by removing wetland and in-stream riparian vegetation; however, the vegetation would be lost and residual impacts would remain. Implementation of the compensatory mitigation proposed for the SMP would reduce these residual impacts to tidal wetlands, freshwater wetlands, and instream riparian vegetation to a less than significant level. The effect of the compensatory mitigation on these three resources, as well as a summary of other related impacts, is described in the following discussion:

Tidal Wetlands

For tidal wetland impacts, no new tidal work areas are projected~~, and, in the Pajaro River Basin where the switch to herbicides is proposed, there are no tidal areas~~. Thus, the removal of 30 acres of tidal wetlands over the next 20 years would be a continuation of existing practices and adoption of the SMP would not result in any new adverse change in ongoing effects. The compensatory mitigation program includes restoration of 30 acres of tidal wetlands at a location either directly adjacent to or no farther than 7 miles from the tidal wetland impact areas. The restoration site is expected to support permanent tidal wetland similar to or of higher quality than the tidal wetland temporarily impacted by repetitive maintenance activities. Refer to the more extensive description of this mitigation measure in SMP Chapter 5. This mitigation measure is therefore considered sufficient to reduce the level of impacts to tidal wetlands to a less than significant level.

Freshwater Wetlands

For freshwater wetlands, sediment removal is projected to occur on approximately 6 miles of streams (5 miles in the Santa Clara Basin and 1 mile in the Pajaro River Basin) that have not undergone regular maintenance in the past. Work in this area would affect 3 acres of freshwater wetlands in the Santa Clara Basin and less than 1acre in the Pajaro River Basin. In the Pajaro River Basin, vegetation management is projected to occur on an additional 9 miles of streams where vegetation management has not been undertaken on a regular basis in the past, which would affect 4 acres of freshwater wetlands. Thus, the SMP would affect ~~116~~ 106 acres of freshwater wetlands in the future, of which 7 acres would be a new adverse change.

The compensatory mitigation program includes creation of 14 acres of freshwater wetland (10 in the Santa Clara Basin and 4 in the Pajaro River Basin) and ~~920 to 1,210~~ 820 to 1,080 acres of stream and watershed protection to compensate for impacts to freshwater wetlands. The locations of these mitigation components will be allocated so that they occur within each basin at approximately the same level as the impacts. The freshwater wetland creation sites will occur at a few locations on the valley floor as compared to the impact areas, which are spread throughout each basin. Although the freshwater wetland creation sites will not be instream as are the impacted freshwater wetlands, they have an advantage of not being subjected to routine disturbance from flood protection maintenance as the impacted sites are, and they will provide habitat for common local wildlife and wetland-related plants in a streamside setting. The types of wetland plant species affected are widespread and regenerate quickly, thus it should not be difficult to create new wetlands of similar or higher quality.

The specific locations of the stream and watershed preservation efforts have not been chosen yet. They are generally expected to be farther up in the watershed than the impacts, however, since the upper watershed is where land suitable for preservation is most available. The type of stream habitat protected under the stream and watershed component is different than the instream freshwater wetland impacted in modified earthen and concrete channels, but the former consists of more structurally and functionally complex native riparian and riverine habitat that occur on less altered stream reaches.

Refer to the more extensive description of these mitigation measures in SMP Chapter 5. Because of the size and quality of the freshwater creation and stream and watershed compensation components, they are considered sufficient to reduce the level of impacts to freshwater wetlands to a less than significant level.

In-stream Riparian Vegetation

No new work areas are projected that would affect in-stream riparian vegetation. ~~The additional impact to in-stream riparian vegetation from the conversion to herbicide use in the Pajaro River Basin is discussed under Impact Bio-6 below.~~ Thus, the removal of ~~78~~ 66 acres of in-stream riparian vegetation of a sapling size over the next 20 years would be a continuation of existing practices, and adoption of the SMP would not result in any new adverse change in ongoing effects.

The compensatory mitigation program includes control of ~~80~~ 66 acres of giant reed over a 10-year period to mitigate for the impacts to riparian vegetation. This program includes associated efforts such as mapping, revegetation, monitoring, and education. Refer to the more extensive description of this mitigation measure in SMP Chapter 5. Since giant reed displaces open water and native riparian and wetland plant communities of freshwater streams, its control is appropriate compensation for impacts to sapling riparian vegetation caused by channel vegetation management activities. The giant reed control program will be spread throughout the county, as are the impacts, although control areas will be targeted to those locations where which the most habitat value can be obtained from sustained control efforts. The giant reed control program will reduce the impacts to riparian vegetation to a less than significant level.

An additional ~~45~~ 59 acres of giant reed control is proposed to compensate for any lag time between maintenance impacts to stream vegetation and implementation of the tidal wetland restoration, freshwater wetland creation, and stream and watershed protection mitigation components.

Other Impacts

With the exception of a small amount of fill, which may occur from some bank protection projects, the SMP would not cause a loss of acreage of jurisdictional waters. Incidental fill is expected to be minimal due to the employment of BMPs. The direct effects to woody riparian vegetation from bank protection were not quantified. Bank protection rarely directly impacts woody riparian vegetation. Because bank protection effects on riparian vegetation primarily affect wildlife, this impact is discussed below in the *Impacts to Wildlife Species* section (see Impact Bio-5). The cumulative adverse impact of the loss of wetland and in-stream riparian vegetation on wildlife is also discussed in that section (see Impact Bio-4). ~~The additional impact to freshwater wetlands from the conversion to herbicide use in the Pajaro River Basin is discussed below under Impact Bio-6.~~

P. IV-B-74, third paragraph (regarding BMPs for Impact Bio-5)

2.1	Minimize vegetation removal
2.3	Minimize Hardscape in Bank Protection Design
2.5	Planting
3.5	Minimize Loss of Aquatic Habitat from Bank Protection work
3.14	Maintain or Provide Escape Cover

P. IV-B-74, fourth paragraph

Implementation of the BMPs referenced above would reduce the adverse impacts of hardscape installation for bank protection; however, over the life of the program habitat would be lost or reduced in value resulting in residual impacts. However, as stated in the Project Description (Chapter II), the District has committed to installing no more than 50 percent of future bank protection projects under the SMP using hardscape methods. ~~Although these residual impacts may be considered insignificant when reviewed on an individual site basis, when evaluated on a program basis the potential for significant, cumulative impacts remains. Implementation of BMP 3.5, for example, would replace functions and values lost via the mitigation provided in the Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities (SMP Appendix E), but that mitigation would not always occur at the impact site and therefore could result in a cumulative fragmentation effect. The cumulative impact from bank protection would thus remain significant and unavoidable.~~ As described in SMP Appendix E, Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities, in-stream and stream-side resources impacts from bank protection will be evaluated and mitigated separately. Implementation of BMPs and mitigation measures as stated in Appendix E of the SMP Report would reduce residual impacts to insignificant levels. Additionally, the District will mitigate for all impacts for impervious hardscape and for unvegetated rock bank protection at a ratio of 3:1 and for all vegetated rock at a ratio of 1:1 regardless of the determination of the impact assessment matrix. This will account for all direct, potential and cumulative impacts from the bank protection program. All impacts and credits will be measured by area and the on-going totals will be reported in the annual report. Mitigation for both in-stream and stream-side impacts will consist of revegetation consistent with the Protocal for Revegetation Associated with Use of Impervious materials for Bank Stabilization in Appendix E. Over time there will be a net increase in stream-side habitat from the proposed mitigation.

P. IV-B-75 and -76

The Impact Bio-6 (*The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife*) is completely deleted.

P. IV-B-99, fourth paragraph

Several BMPs are designed to minimize impacts from bank protection activities. Biotechnical bank protections, which include soft structures, such as planting native riparian vegetation, will be utilized when feasible (BMPs 1.5, 2.3, 2.5, 2.6, and 2.7). The biotechical stream bank protection methods for fish also apply in part to semi-aquatic reptiles and amphibians see Group B discussion of bank protection impacts). For example, turtles could use submerged instream wood as cover. Frogs and turtles could also use instream wood above the water as basking sites and cover. Rock used in bank stabilization has some value as cover and basking site. Habitat enhancement for semi-aquatic reptiles and amphibians will occur as a result of planting vegetation as part of pro-active bank stabilization (BMPs 2.5 and 2.7) and maintenance of stable undercut banks (BMP 3.14). To avoid injury or destruction of individuals or egg masses during bank protection activities, the work site will be surveyed for special-status species prior to maintenance activities when suitable habitat is present (BMPs 3.1, 3.19, and 3.7). Areas of known occurrences will be listed in the District's GIS database, which will assist in planning activities. Project-specific resource protection measures, such as set-backs or buffer zones, will be used to avoid impacts (BMP 3.2).

P. IV-B-101, third and forth paragraph

The bank protection program avoids impacts by distinguishing three categories of streams based on the fishery values they support and ~~altering~~ alternative bank protection methods accordingly. First, reaches of streams supporting or potentially supporting steelhead and resident trout are recognized as highly sensitive. ~~and bank protection methods that do not incorporate fishery values are not acceptable in these streams (fish habitat categories are described in *Fisheries and the Aquatic Environment*, above). Only bank protection methods incorporating fishery values that, at a minimum, replace those previously present will be used. If a site requiring bank protection is located in this type of stream but has limited or no fishery values present, methods incorporating fishery values would be counted as mitigation credit at a 1:1 ratio (by project length) for other bank protection program impacts. If site constraints are such that methods incorporating fishery values cannot be used, mitigation credits must be used at a 2:1 ratio by project length.~~ Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

A second category of stream reaches does not support steelhead or resident trout but occurs downstream of steelhead/trout habitat and may therefore be used by migrating individuals. In addition, chinook salmon may spawn in some of these reaches and salmon fry may rear there for brief periods in the spring. Alternatively these reaches may be dominated by a natural assemblage of native warmwater fish (primarily Sacramento sucker and California roach) and may also have the potential to support red-legged frogs and other sensitive species. Although not as critical as the first group of streams, fishery values including escape cover, velocity refuge, and fine sediment stabilization may still be important. ~~In this group of stream reaches, bank protection projects will use methods incorporating fishery values at sites where those values are present. Methods that do not incorporate fishery values may be used but must be mitigated on a 1:1 basis. If bank protection sites do not support fishery values, using methods that support such values will gain mitigation credits on a 1:1 basis while use of other methods will result in neither loss or gain of mitigation credits.~~ Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

P. IV-B-102, first paragraph

The third category of stream reaches has no steelhead or trout habitat upstream but may itself support a variety of fish community types, including mixed native and introduced, fish scarce, and no value. In such streams, bank protection projects incorporating fishery values may have little benefit to the aquatic community present. Greater flexibility in selection of bank protection methods is possible in this category and, while other species should be considered, virtually any method may be selected without potential impact to steelhead/rainbow trout, chinook salmon, or fish communities dominated by warmwater native fish (although other biological impacts to non-salmonids may occur; see Impact Bio-5). Mitigation will be incorporated in accordance with the SMP, Appendix E, Section 4.3

P. IV-B-102, second paragraph

~~*Following the guidelines prescribed by the Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities, impacts from bank stabilization to special-status anadromous salmonid fish would be less than significant.*~~

P. IV-B-103, second paragraph

Bank protection may reduce the amount of salt and tidal wetland habitat available for special-status plants, birds, and mammals. Loss of wetlands is not typically associated with an erosion site. Bank protection could occur on streams that are adjacent to salt and tidal wetlands and that have the potential to support these species. However, the only Group D species that could be substantially affected by bank protection are California black rails and California clapper rails. California black rails and California clapper rails are not expected to nest within the stream channel; however, rails may forage in the channels. Bank protection could eliminate foraging habitat. The other Group D species are not expected on stream banks that will receive bank protection because these are typically unvegetated due to soil erosion.

P. IV-D-17, third paragraph

Impact Haz-1: Preventing Exposure of Mercury During Bank Protection Projects

Mitigation

Mitigation for this potential impact is accomplished by the application of the following BMP and mitigation measure:

1.10 Avoid Exposing Soils with High Mercury Levels

Bank protection projects in portions of the Guadalupe River watershed affected by historical mercury mining may expose soils containing mercury which can affect stream water quality.

1. In the specified channel reaches in the Guadalupe River Basin, soils that are likely to be disturbed or excavated shall be tested for Mercury (Hg). Soils shall be remediated if:

    A. disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or
    B. disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg.
2. Remediation can be accomplished either by:
    A. treating the site so that the remaining soil after excavation for the purpose of installing bank protection will not be susceptible to erosion, or
    B. by further excavating contaminated soils and replacing them with clean fill or other bank protection materials that are free from contaminants.
    C. Soils with mercury concentrations exceeding 20 mg/kg will be removed and disposed of in a Class I landfill following established work practices and hazard control measures.

3. To ensure worker safety is protected during bank protection projects with elevated mercury concentrations in the exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the Occupational Safety and health Agency (OSHA).

P. V-1, first paragraph

The alternatives analysis focuses on the ways that the long-term, cumulative impacts of routine maintenance could be reduced. The proposed project is adoption of the Stream Maintenance Program (SMP) and implementation of its work performance protocol and programmatic mitigation. The proposed ~~SMP is characterized as~~ project is the Modified Pajaro River Basin Alternative in the FEIR ~~Multi-Year Program (Preferred Alternative)~~. The Existing Program Alternative represents the District not adopting the SMP and continuing the current practice of routine maintenance on an annual basis. The No Work Alternative would eliminate all maintenance in streams and canals by the District within its jurisdiction. The Reduced Work Alternative would eliminate work in unmodified channels, and does not include hardscape bank protection. The No Herbicides Alternative and the Modified Pajaro River Basin Alternative reduce the amount of area treated with herbicides compared to the Multi-Year Program Alternative.

P. V-1, fifth paragraph

The proposed project is the SMP for Routine Maintenance Activities on District facilities and is referred to as the Modified Pajaro Basin Alternative ~~Multi-Year Program~~. The SMP would apply BMPs to avoid or minimize impacts and a regional mitigation program to compensate for unavoidable impacts at individual maintenance sites. The EIR examines a series of alternatives to meet statutory requirements and to evaluate the possibility that the effects of the proposed project could be lessened or avoided.

P. V-2, third paragraph

As required by CEQA, alternatives are compared to the Modified Pajaro River Basin Alternative ~~Multi-Year Program~~ (Preferred Alternative), as described in detail in Chapter II. Refer to Revised Tables V-1 and V-2 which provide information for each alternative. The proposed project includes sediment removal, vegetation management, bank protection, and minor work activities throughout the District's jurisdiction (and below the 1000-foot elevation contour).

P. V-7, second paragraph

1. Multi-Year Program ~~(Preferred Alternative)~~

The Multi-Year Program, ~~which is the Preferred Alternative and is described in detail in the SMP,~~ includes sediment removal, vegetation management, bank protection and minor associated work. Projected levels of work are based on historical levels with minor adjustments made for foreseeable future changes. The extent of work under the Multi-Year Program would be ~~61~~ 58 miles of sediment removal and ~~258~~ 246 **miles** of channel vegetation management. The extent of maintenance is defined as the total length or area on which stream maintenance will repeatedly take place.

P. V-3, Table Title: Comparison of Alternatives by Potentially Significant Impacts

P. V-7, fifth paragraph

The bank protection work would include both hardscape and softscape designs with a programmatic exchange of mitigation between designs which ~~tend to~~ ~~limit~~ reduce or eliminate biotic potential and those which ~~tend to retain~~ enhance it. Refer to this EIR Chapter 2, Project Description and Appendix E of the SMP for details on the mitigation program for bank protection activities.

P. V-9, third paragraph

~~The same amount of flood protection would be provided as under the Multi-Year Program; however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management, average annual costs would increase approximately $2 million or 19% compared to the Multi-Year Program (Table V-4).~~ See Revised Table V-4 for a comparison on cost estimates for each alternative.

P. V-10, first paragraph

The No Work Alternative would cause significant threat ~~to~~ of flooding to areas that have been removed from ~~the flood plain~~ flood hazard designation as a result of flood protection projects constructed by the District.

P. V-11, second paragraph

The same BMPs would be applied except for those which are relevant only to herbicide use. The mitigation program would be the same as for the Modified Pajaro River Basin Alternative ~~Multi-Year Program~~. The approach to multi-year CEQA review and permits would be the same as under the

Modified Pajaro River Basin Alternative ~~Multi-Year Program~~. The same amount of flood protection would be provided as under the Modified Pajaro River Basin Alternative ~~Multi-Year Program, however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management, average annual costs would increase approximately $8 million or 66% compared to the Multi-Year Program (Table V-4)~~. See Revised Table V-4 for a comparison on cost estimates for each alternative.

P. V-11, third, fourth and fifth paragraphs, P. V-12, first and second paragraphs

This Modified Pajaro Basin Alternative is similar to the ~~proposed project~~ the Multi-Year Program Alternative except that it will not include the use of herbicides in stream channels of the Pajaro River Basin unless they are for the control of non-native, invasive plants. Instead, hand and mechanical methods will continue to be used to control vegetation in the Pajaro River Basin stream channels. Herbicides will be used on 157 acres in adjacent upland areas in the Pajaro River Basin, and in channels, canals and associated upland areas in the Santa Clara Basin.

The Modified Pajaro River Basin Alternative includes the same amount of sediment removal, vegetation management, bank protection and minor activities as the Multi-Year Program.

Initial impacts to stream vegetation would consist of ~~116~~ 106 acres of freshwater wetland, 30 acres of tidal wetland, and ~~78~~ 66 acres of riparian vegetation and this amount would not change over time since there is no conversion of vegetation management types in the channel. This would result in a greater amount of in-channel vegetation in the Pajaro River Basin than under the Multi-Year Program Alternative and would provide a beneficial effect to the streamside habitat because vegetation would be trimmed back instead of being killed, allowing wildlife cover, roosting, feeding and nesting opportunities. This would also result in less streamside habitat fragmentation caused by vegetation management activities. However, the annual amount of stream vegetation removed in the Pajaro River Basin would be greater than for the Multi-Year Program Alternative over the long term, and the method would be temporarily more disruptive to resident wildlife.

The BMPs, ~~compensatory mitigation~~, and approach to multi-year CEQA review and permits would be the same as under the Multi-Year Program Alternative. Because the impacts are less, the Modified Pajaro River Basin (Preferred Alternative) would include the following compensatory mitigation program: restoring 30 acres of tidal wetland, creating 14 acres of freshwater wetlands, preserving and restoring 820 to 1,080 acres of stream and watershed, and control of 125 acres of giant reed. The same amount of flood protection would be provided as under the Multi-Year Program Alternative, however, because of the greater expense of the hand and mechanical methods compared to herbicide use for vegetation management, average annual costs would increase ~~approximately $2 million or 17% compared to the Multi-Year Program (Table V-4)~~. See Revised Table V-4 for a comparison on cost estimates for each alternative.

P. V-12, third paragraph

The Reduced Work Alternative would reduce the overall amount of routine stream maintenance work. Sediment removal and vegetation management would no longer take place in unmodified channels except 100 feet upstream and downstream of bridges or road crossings as needed and at stream gages, outfalls, trash racks and other structures as described under the minor work activities in Chapter II, Program Description. Unmodified channels are channels in which no modifications have been made by the District for flood protection purposes. Unmodified channels may be in a natural condition with stream meanders and trees lining the bank. However, some unmodified channels have been altered by historical land uses and in appearance, are more like a ditch than a natural channel. Maintenance activities in canals would be the same as under the Multi-Year Program. Herbicide use would resume in the Pajaro River Basin. The extent of work under the Reduced Work Alternative would be 55 miles of sediment removal and 142 miles of channel vegetation management (Figure V-1). Control of invasive non-native plants could be undertaken in unmodified channels under the Reduced Work Alternative.

P. V-13, fourth paragraph

~~Average annual costs would decrease approximately $500,000 or 4% compared to the Multi-Year Program (Table V-4).~~ See Revised Table V-4 for a comparison on cost estimates for each alternative.

P. V-17, See Table V-3 Comparison of Alternatives by Impacts (Impact Bio-5)

P. VI-2, fourth paragraph

~~The structues created by bank protection can be considered essentially permanent. Chapter IV.B., Biology identifies hardscape installation for bank protection, as having the potential to have cumulative, significant, irreversible environmental changes. Implementation of the BMPs would reduce the adverse impacts, habitat would be lost or reduced in value resulting in residual impacts. The proposed 3.1 mitigation for impervious bank protection and unvegetated rock bank protection would provide a net increase in stream-side habitat in the long run and reduce residual impacts to an insignificant level. The actual amount of hardscape versus softscape to be installed by future bank protection cannot be projected because the conditions of each site and resulting design vary greatly and cannot be predicted. The cumulative impacts from bank protection would thus remain unavoidable at an insignificant level.~~

P. VI-2, fifth paragraph

~~Other~~ One biological impacts remains significant even after application of mitigation measures: ~~resuming herbicide use in the Pajaro River Basin, thus holding vegetation to a lower successional stage, and~~ fragmentation of habitat caused by breaking the linear stream corridors into smaller pieces. Since at this time it is unknown the extent of impacts caused by this practice ~~both of these practices~~, these impacts are considered significant even after mitigation. However, ~~both of these practices do~~ this practice does not result in irreversible changes, as the impacts would disappear if the practice~~s were~~ was discontinued.

P. VI-4, fourth paragraph

The SMP includes a compensatory mitigation package to compensate for significant residual impacts. This mitigation is described in detail in Chapter 5 of the SMP. There are potential cumulative environmental impacts of the mitigation program which will be addressed as part of the Mitigation and Monitoring Program to be prepared prior to completion of the Final EIR or under specific CEQA documents to be prepared for certain mitigation projects (e.g. Pond A-4 and Los Capitancillos). This section summarizes what is currently known about potential environmental effects of these mitigation projects and how these will be resolved. All environmental effects are expected to be resolved in the individual project CEQA documents tierred from this programmatic EIR ~~therefore, no cumulative effects along with the SMP work activities will occur.~~

P. VI-6, second paragraph

This reach of Llagas Creek has limited potential to be a migratory corridor for steelhead trout. This potential will be further evaluated during the project's individual CEQA review. If necessary, the water diversion structure will be designed to allow for fish passage throughout the year, by installation of a fish ladder or other means, thus avoiding impacts to migrating steelhead. The cumulative effect of another fish ladder on Llagas Creek will be considered during design of this project, and alternative means to either divert water from Llagas Creek or to provide fish passage around a water intake structure will be considered.

P. VI-11 , last sentence

Other minor activities by others in District facilities are taken into account by the District in its permit review process. Refer to Chapter II.E.4. Definition of Potential for Cumulative Impact for a list of current major stream projects by others and a summary of the general amount of such projects reviewed by the District each year. The District comments on new projects proposed by other agencies or property owners within 50 feet of a creek to determine if they will affect the flow of water, collect debris, or will adversely affect the ability of channel banks to carry flood waters or resist erosion (District Ordinance 83-2). The District encourages projects to be designed so as to avoid unstable bank conditions, large increases in discharge, or conditions that might cause pollution. Additionally, the District and the various cities participate in a Non-Point Source Control Program as defined in Section III of this document. One of the main purposes of District review of channel encroachment and construction by others in and near channels is to prevent incorrectly designed or poorly installed work from causing channel sedimentation or bank failure. These stream projects by others are not expected to cumulatively result in additional impacts along with the SMP for two reasons. First, by reviewing these other projects under its permit program, the District is usually able to avoid any significant effects to the streams. Second, SMP activities are proportionally much greater in size (~~265~~ 229 miles of streams) than stream projects implemented by others, yet the SMP avoids or mitigates for most of its own impacts~~, thus there is no cumulative effect when combined with these much smaller projects~~. However, the remaining significant and unavoidable project-level cumulative environmental impact under the Modified Pajaro River Basin Alternative (Preferred Alternative) (Impact Bio-4,) will continue to occur and is incrementally significant when SMP activities are combined with other activities affecting District channels.

VII-19, eighth, ninth and tenth paragraph

International Erosion Control Association, 1996, Design Procedures to channel protection and stream-bank stabilization.

~~Jackson, R. 1974. Site File Form for CA-SCL-186. MS on file, California Archaeological Site Inventory, Northwest Information Center, Rohnert Park~~.

International Erosion Control Association, 1996, Biotechnical Erosion Control for Slopes and Stream-banks.

P. VII-17, first paragraph

Bell, G. 1997 Ecology and Managment of Arundo donax, and Approaches to Habitat Restoration in Southern California in Brock, J.H., Wade, M., Pysek, P., and Green, D. (Eds): Plant Invasions: Studies from North America and Europe. Blackhuys Publishers, Leiden, The Netherlands, pp.103-113.

P. VII-22, inserted after eighth paragraph

Rosgen, D.l. 1996, Applied River Morphology

P. VII-24, sixth paragraph

US Corps of Engineers, 1997, Bioengineering for Stream-bank Erosion Control

Santa Clara Valley Water District

FINAL EIR

REVISED EIR TABLES

August 21, 2001

Revised Table II-3
Extent of Projected Sediment Removal

Work Activity	LENGTH (miles)			WORK AREA (acres)			VOLUME REMOVED (cubic yards)			Stream Vegetation Impacts (acres)		
	Avg Annual	Extent of Maint.	20 yrs	Avg Annual	Extent of Maint.	20 yrs	Avg Annual (cy)	~~Extent of Maint.~~	20 yrs	Fresh-water Wetland	Tidal Wetland	Riparian Vegetation
Santa Clara Basin Streams												
Sediment Removal	14	47	281	59	164	1,181	73,070	~~206,800~~	1,461,400	61	29	0
Pajaro River Basin Streams												
Sediment Removal	2	~~14~~ 11	~~42~~ 31	~~4~~ 3	~~31~~ 25	~~84~~ 61	~~6,930~~ 6,490	~~39,900~~	~~138,600~~ 129,800	~~19~~ 11	0	0
Total, SCVWD Streams												
Sediment Removal	16	~~61~~ 58	~~323~~ 312	~~63~~ 62	~~195~~ 189	~~1,265~~ 1,242	~~80,000~~ 79,560	~~246,700~~	~~1,600,000~~ 1,591,200	~~80~~ 72	29	0

Note: Minor sediment removal of less than 1,000 cubic yards per year would be done in the canals.

Source: Santa Clara Valley Water District, ~~3/01~~ 8/01

Table II-4
Revised Extent of Projected Vegetation Management

WORK ACTIVITY		LENGTH (miles)			WORK AREA (acres)			TREATED AREA (acres)			Stream Vegetation Impacts (acres)		
		Ave Annual	Extent of Maint.	20 yrs	Ave Annual	Extent of Maint.	20 yrs	Ave Annual	Extent of Maint.	20 yrs	Freshwater Wetland	Tidal Wetland	Riparian Vegetation
Santa Clara Basin Streams													
	Channel Followup Hand Removal	17	106	335	51	391	1,027	8	51	152	---	---	---
	Channel Hand Removal	3	16	58	5	30	93	1	5	19	4	0	1
	Channel Herbicide	163	157	3,264	581	556	11,610	74	71	1,474	19	1	31
	Upland Discing	6	6	120	105	105	2,105	32	32	632	---	---	---
	Upland Hand Removal	19	19	385	100	100	1,990	27	27	539	---	---	---
	Upland Herbicide	507	261	10,142	1,676	904	33,513	1,154	623	23,089	---	---	---
	Upland Mowing	57	57	1,135	316	316	6,319	168	168	3,369	---	---	---
	Upland Overhanging Growth Removal	63	75	1,266	40	48	797	6	7	115	---	---	---
Santa Clara Basin Totals		835		16,705	2,874		57,454	1,470		29,389	23	1	32
Pajaro River Basin Streams													
	Channel Hand Removal	46	46	929	280	280	5,605	45	45	891	4	0	34
	Upland Discing	1	1	20	34	34	670	10	10	201	---	---	---
	Upland Hand Removal	2	2	47	3	3	60	2	2	38	---	---	---
	Upland Herbicide	99	51	1,983	412	225	8,230	304	157	6,083	---	---	---
	Upland Mowing	36	36	723	204	204	4,085	150	150	2,990	---	---	---
	Upland Overhanging Growth Removal	1	2	24	1	2	18	0	0	2	---	---	---
Pajaro Basin Totals		185		3,726	934		18,668	511		10,205	4	0	34
SCVWD Streams													
	Channel Followup Hand Removal	17	106	335	51	391	1,027	8	51	152	---	---	---
	Channel Hand Removal	49	62	987	285	310	5,698	46	50	910	8	0	35
	Channel Herbicide	163	157	3,264	581	556	11,610	74	71	1,474	19	1	31
	Upland Discing	7	7	140	139	139	2,775	42	42	833	---	---	---
	Upland Hand Removal	21	21	432	103	103	2,050	29	29	577	---	---	---
	Upland Herbicide	606	312	12,125	2,088	1,129	41,743	1,458	780	29,172	---	---	---
	Upland Mowing	93	93	1,858	520	520	10,404	318	318	6,359	---	---	---
	Upland Overhanging Growth Removal	64	77	1,290	41	50	815	6	7	117	---	---	---
SCVWD Streams Totals		1,020		20,431	3,808		76,122	1,981		39,594	27	1	66
Canals													
	Canal Followup Hand Removal	5	28	104	1	3	11	0	1	3	---	---	---
	Canal Hand Removal	0	0	0	0	0	0	0	0	0	0	0	0
	Canal Herbicide	27	27	547	23	23	451	6	6	114	7	0	0
	Upland Discing	10	10	194	17	17	332	4	4	83	---	---	---
	Upland Hand Removal	10	10	194	1	1	100	5	5	25	---	---	---
	Upland Herbicide	42	42	846	101	101	2,012	25	25	503	---	---	---
	Upland Mowing	10	10	206	2	2	140	7	7	35	---	---	---
	Upland Overhanging Growth Removal	0	0	0	0	0	0	0	0	0	---	---	---
Canals Totals		104		2,091	145		3,046	47		763	7	0	0
All SMP Activities													
	Channel Followup Hand Removal	22	134	439	52	394	1,038	8	52	155	---	---	---
	Channel Hand Removal	49	62	987	285	310	5,698	46	50	910	8	0	35
	Channel Herbicide	190	184	3,811	604	579	12,061	80	77	1,588	26	1	31
	Upland Discing	17	17	334	156	156	3,107	46	46	916	---	---	---
	Upland Hand Removal	31	31	626	104	104	2,150	34	34	602	---	---	---
	Upland Herbicide	648	354	12,971	2,189	1,230	43,755	1,483	805	29,675	---	---	---
	Upland Mowing	103	103	2,064	522	522	10,544	325	325	6,394	---	---	---
	Upland Overhanging Growth Removal	64	77	1,290	41	50	815	6	7	117	---	---	---
Grand Total - SMP		1,124		22,522	3,953		79,168	2,028		40,357	34	1	66

The frequency of non-selective herbicide work in upland areas is twice per year, and therefore, annual average work is higher than extent of maintenance work for upland [redacted]cide.

Revised Table II-5
~~Existing~~ Projected Annual Herbicide Use

Product Name	Chemical Type	Use	Average Annual Amount
Gallery	Isoxaben	Preemergent, selective to broadleaf weeds. Used on levee slopes and maintenance roads.	447 pounds
Garlon 3A	Triclopyr, triethylamine salt	Postemergent, selective to broadleaf weeds. Used on levee slopes.	5 gallons
Garlon 4	Triclopyr, triethylamine salt	Postemergent, selective to broadleaf weeds. Used on levee slopes.	62 gallons
Oust	Sulfometuron	Preemergent, nonselective. Used on access roads/firebreaks.	206 ounces
Pendulum	Pendimethalin	Preemergent, selective to grasses. Used on access roads/firebreaks.	3,576 pounds
Aqua Master (formerly known as Rodeo)	Glyphosate	Postemergent, nonselective. Approved for aquatic use. Used in channels.	~~750~~ 595 gallons
Roundup Pro	Glyphosate	Postemergent, nonselective. Roundup used in upland areas on maintenance roads/firebreaks.	1,021 gallons
Surflan (AS)	Oryzalin	Preemergent, selective to grasses. Used on access roads, firebreaks, and landscape/ revegetation areas.	~~1,269 ounces~~ 90 gallons
Telar	Chlorsulfuron	Preemergent, selective to broadleaf weeds. Used on levee slopes and maintenance roads.	2,140 ounces
Transline	Clopyralid	Postemergent, selective to specific broadleaf families. Some minor preemergent activity. Used for control of yellow star thistle on levee slopes/upland parcels.	16 gallons
Target Pro-spreader/ activator or Wilbur-Elias R-11 spreader activator		Surfactant used with Aqua Master®, Garlon, and Transline products.	~~310~~ 259 gallons

Revised Table II-7
Compensatory Stream Vegetation and Special Status Species Mitigation

Mitigation Component	Location	Size of Mitigation	Compensates for Impacts to:	Description	Installation Date
Tidal Wetland Restoration	Pond A-4	30 acres	30 acres of tidal wetlands: 29 acres from sediment removal 1 acre from vegetation mgmnt. Will provide foraging habitat for California clapper rail and black rail.	Restore diked salt evaporator pond to historical tidal marsh conditions	~~2006~~ 2007
Freshwater Wetland Creation	Three sites currently identified:		14 acres of freshwater wetland in stream channels: 10 acres in Santa Clara Basin 4 acres in Pajaro River Basin		
	Los Capitancillos	3 acres, Santa Clara Basin		Convert annual grasslands to seasonal or perennial wetlands adjacent to Guadalupe River	2002
	Coyote Lakes Park Site 10A	7 acres, Santa Clara Basin		Convert ruderal grasslands to near-perennial wetlands adjacent to Coyote Creek	~~No date yet~~ 2005
	Church Pond No. 2	4 acres, Pajaro River Basin		Convert open water in inactive percolation pond to wetland bench	2003
Stream and Watershed Protection	Undeveloped parcels with streams	Approx. ~~920 to 1,210~~ 820 to 1,080 acres purchased and additional restored	~~102~~ 92 acres of freshwater wetlands: 74 acres in Sta Cl Basin streams ~~21~~ 11 acres in Paj Bas. streams 7 acres in canals Includes preservation/restoration of 108 acres of mitigation on land known to support California red-legged frog and western pond turtle.	Preserve, protect, and improve streams and associated ~~wetlands~~ watersheds	As lands become available in first 10 years. See schedule in MMRP.
Giant Reed Control	Throughout county	125 acres	~~78~~ 66 acres of riparian vegetation from vegetation management: 32 acres in Santa Clara Basin ~~46~~ 34 acres in Pajaro River Basin And, 59 acres of the total 125 acres of Giant Reed Control is being provided for lag time in implementing and effective functioning of ~~other~~ mitigation components	Control giant reed outbreaks and provide associated mapping, revegetation, education, and coordination throughout county	2002-2012

Revised Table IV-B-7. Summary of in-channel vegetation impacts in acres.

Work Activity	Stream Vegetation Impacts		
	Freshwater Wetlands	Tidal Wetlands	Riparian Vegetation
Santa Clara Basin Streams			
Sediment Removal	61	29	0
Vegetation Management	23	1	32
Santa Clara Basin Total	84	30	32
Pajaro River Basin Streams			
Sediment Removal	~~19~~ 11	0	0
Vegetation Management	~~6~~ 4	0	~~46~~ 34
Pajaro River Basin Total	~~25~~ 15	0	~~46~~ 34
District Streams Total	~~109~~ 99	30	~~78~~ 66
Canals			
Sediment Removal	n/a	n/a	n/a
Vegetation Management	7	0	0
Canals Total	7	0	0
Total SMP	**~~116~~ 106**	**30**	**~~78~~ 66**

Source: District ~~3/01~~ 8/01

Note: Impact projections from vegetation management represent sections of creek where only channel vegetation management work is undertaken.

Revised Table V-1
Definition of Alternatives

Alternative	Amount of Work (extent of channel maintenance)	Initial Impacts to Stream Vegetation	Herbicide Use in Santa Clara Basin	Herbicide Use in Pajaro River Basin
1. Multi-Year Program ~~(Preferred)~~	**Sediment removal** 58 ~~61~~ miles Channel vegetation management 246 ~~258~~ miles	Freshwater Wetlands 108 ~~116~~ acres Tidal Wetlands 30 acres Riparian Vegetation 67 ~~78~~ acres	Yes	Yes
2. Existing Program	Sediment removal 58 ~~61~~ miles Channel vegetation management 246 ~~258~~ miles	Freshwater Wetlands 108 ~~116~~ acres Tidal Wetlands 30 acres Riparian Vegetation 67 ~~78~~ acres	Yes	No
3. No Work	Sediment removal 0 miles Channel vegetation management 0 miles	None	No	No
4. No Herbicides	Sediment removal 58 ~~61~~ miles Channel vegetation management 246 ~~258~~ miles	Freshwater Wetlands 106 ~~116~~ acres Tidal Wetlands 30 acres Riparian Vegetation 66 ~~78~~ acres	No	No
5. Modified Pajaro River Basin (Preferred)	**Sediment removal 58 ~~61~~ miles Channel vegetation management 246 ~~258~~ miles**	**Freshwater Wetlands 106 ~~116~~ acres Tidal Wetlands 30 acres Riparian Vegetation 66 ~~78~~ acres**	**Yes**	**No in channels, Yes in uplands**
6. Reduced Work	**Sediment removal ~~58~~ 55 miles Channel vegetation management ~~190~~ 142 miles**	**Freshwater Wetlands 105 acres Tidal Wetlands 30 acres Riparian Vegetation 39 acres**	**Yes, less than SMP**	**Yes, less than SMP**

Note: Includes streams and canals.

Revised Table V-2
Alternatives-Comparison of Initial Stream Vegetation Impacts

	Impacts to Stream Vegetation from Sediment Removal and Vegetation Management (acres)					
	Initial Impacts			**Long Term Impacts**		
	Freshwater Wetlands	**Tidal Wetlands**	**Riparian Vegetation**	**Freshwater Wetlands**	**Tidal Wetlands**	**Riparian Vegetation**
1. Multi-Year Program ~~(Preferred)~~	108 ~~116~~	30	67 ~~78~~	108 ~~116~~	30	67 ~~78~~
2. Existing Program	108 ~~116~~	30	67 ~~78~~	108 ~~116~~	30	67 ~~78~~
3. No Work	0	0	0	0	0	0
4. No Herbicides	106 ~~116~~	30	66 ~~78~~	125 ~~142~~	31	97 ~~109~~
5. Modified Pajaro River Basin (Preferred)	106 ~~116~~	30	66 ~~78~~	106 ~~116~~	30	66 ~~78~~
6. Reduced Work	105	30	39	103	30	38

Source: District ~~3/01~~ 8/01

Revised Table V-3
Comparison of Alternatives by Potentially Significant Impacts

Impact	1. Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
Geomorphology						
Impact Geo-1. Sediment removal in certain locations may increase erosion downstream of the removal site.	Less than Significant with BMP 1.13 Prevent Scour Downstream of Sediment Removal.	Less than Significant with implementation of BMP 1.13.	No effect since no sediment removal would occur.	Less than Significant with implementation of BMP 1.13.	Less than Significant with implementation of BMP 1.13.	Less than Significant with implementation of BMP 1.13.
Impact Geo-2. Elimination of in-channel vegetation may increase sediment accumulation downstream.	Less than Significant with BMP 1.14 Minimize Sediment Transport Downstream from In-Channel Herbicide Sites.	Less Than Significant with implementation of BMP 1.14.	No effect since no herbicide application would occur.	No effect since no herbicide application would occur.	Less Than Significant with implementation of BMP 1.14. Effect less likely to occur due to no herbicide use in Pajaro River Basin.	Less Than Significant with implementation of BMP 1.14. Effect less likely to occur due to reduced level of work.
Impact Geo-3. Removal of vegetation may increase local erosion.	Less than Significant with implementation of BMP 1.16 Minimize Local Erosion Increase from In-Channel Vegetation Removal	Less Than Significant with implementation of BMP 1.16.	No effect since vegetation removal would not occur.	Less Than Significant with implementation of BMP 1.16.	Less Than Significant with implementation of BMP 1.16.	Less Than Significant with implementation of BMP 1.16. Effect less likely to occur due to reduced level of work.
Impact Geo-4. Bank protection measures can direct flows downstream, resulting in new erosion and bank instability problems at locations downstream of the repaired site.	Less than Significant with implementation of BMP 1.15 Prevent Erosion Downstream of Bank Protection Sites.	Less Than Significant with implementation of BMP 1.15.	No effect of erosion downstream of bank protection sites since bank protection would not occur. However, without bank protection program, there would be a greater amount of bank instability.	Less Than Significant with implementation of BMP 1.15.	Less Than Significant with implementation of BMP 1.15.	Less Than Significant with implementation of BMP 1.15. Since this alternative does not include hardscape, this effect less likely to occur.

Impact	**1. Multi-Year Program ~~(Preferred)~~**	**2. Existing Program**	**3. No Work**	**4. No Herbicides**	**5. Modified Pajaro River Basin (Preferred)**	**6. Reduced Work**
Impact Geo-5. Removal of woody debris may reduce channel bed diversity.	Less than Significant with implementation of BMP 3.9 Retain Woody Materials and Vegetation	Less than Significant with implementation of BMP 3.9	No effect since removal of woody debris would not occur.	Less than Significant with implementation of BMP 3.9	Less than Significant with implementation of BMP 3.9	Less than Significant with implementation of BMP 3.9. This effect less likely to occur since no work will occur in unmodified channels.
Biology						
Impact Bio-1: Sediment removal and vegetation management would impact in-stream wetland and riparian vegetation	Less than Significant with BMP 1.13 Prevent Scour Downstream of Sediment Removal, BMP 2.1 Minimize Vegetation Removal, BMP 3.6 Remove Sediment from One Side of Large Channels in Alternative Years, and with compensatory mitigation program for tidal, freshwater, and riparian vegetation.	Less Than Significant with implementation of BMPs 1.13, 2.1, 3.6 and same compensatory mitigation program as for Preferred Alternative. Compensatory mitigation may not be implemented as soon and as coordinated as under Preferred Alternative.	No effect since sediment removal and vegetation management would not occur. Overall greater amount of vegetation expected in channels if no work is conducted although some wetland areas may convert to riparian or upland vegetation.	Less Than Significant with implementation of BMPs 1.13, 2.1, 3.6 and same compensatory mitigation program as for Preferred Alternative.	Less Than Significant with implementation of BMPs 1.13, 2.1, 3.6 and same compensatory mitigation program as for Preferred Alternative.	Less Than Significant with implementation of BMPs 1.13, 2.1, 3.6 Less disturbance of vegetation due to no work occurring in unmodified channels. Compensatory mitigation program would be proportionally less than for Preferred Alternative due to lower impacts.
Impact Bio-2: The project could result in removal of heritage-sized trees	Less than Significant with implementation of BMP 2.1 Minimize Vegetation Removal, BMP 2.2 Minimize Stream Access Impacts, BMP 2.8 Replace Heritage Trees, and BMP 3.9 Retain Woody Materials and Vegetation.	Less Than Significant with implementation of BMPs 2.1, 2.2, 2.8 and 3.9.	No effect since no bank protection would occur.	Less Than Significant with implementation of BMPs 2.1, 2.2, 2.8 and 3.9.	Less Than Significant with implementation of BMPs 2.1, 2.2, 2.8 and 3.9.	Less Than Significant with implementation of BMPs 2.1, 2.2, 2.8 and 3.9. Effect less likely to occur since hardscape bank protection projects not included.

Impact	1._Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
Impact Bio-3: Program implementation could introduce invasive plant species into native, riparian, or wetland habitat areas	Less than Significant with implementation of BMPs 2.1 Minimize Vegetation Removal, 2.5 Planting, 2.6 Mulching, and 2.7 Seeding. Giant Reed Control component of compensatory mitigation reduces amount of giant reed throughout county.	Less than Significant with implementation of BMPs 2.1, 2.5, 2.6, and 2.7. Without use of herbicides in upland areas in Pajaro River Basin, it will be more difficult to control yellow star thistle. Giant Reed Control component of compensatory mitigation reduces amount of giant reed throughout county.	No effect from stream maintenance on introducing invasive plants species. There would be no giant reed control program.	Less than Significant with implementation of BMPs 2.1, 2.5, 2.6, and 2.7. Without use of herbicides in upland areas in either basin, it will be more difficult to control yellow star thistle. Giant Reed Control component of compensatory mitigation reduces amount of giant reed throughout county but would be more difficult to implement without the use of herbicides.	Less than Significant with implementation of BMPs 2.1, 2.5, 2.6, and 2.7. ~~Without use of herbicides in upland areas in Pajaro River Basin, it will be more difficult to control yellow star thistle.~~ Giant Reed Control component of compensatory mitigation reduces amount of giant reed throughout county.	Less than Significant with implementation of BMPs 2.1, 2.5, 2.6, and 2.7. Giant Reed Control component of compensatory mitigation reduces amount of giant reed throughout county although at about one-half the level as for the Preferred Alternative.
Impact Bio-4: The cumulative impact of sediment removal and vegetation management would fragment wildlife habitat	Significant /Unavoidable even with the implementation of BMP 1.13 Prevent Scour Downstream of Sediment Removal, BMP 2.1 Minimize Vegetation Removal, BMP 3.6 Remove Sediment from One Side of Large Channels in Alternate Years, and compensatory mitigation program for tidal and freshwater wetlands and riparian vegetation due to cumulative effects throughout the county, 20 year time period, and increasing development of surrounding uplands.	Significant /Unavoidable as with the Preferred Alternative.	No effect would occur as a result of stream maintenance, since no stream maintenance would occur.	Significant /Unavoidable as with the Preferred Alternative.	Significant /Unavoidable as with the Preferred Alternative.	Significant /Unavoidable as with the Preferred Alternative, however, level of impact somewhat reduced due to cessation of work in unmodified channels.

Impact	1._Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
Impact Bio-5: Bank protection would cause a loss of riparian vegetation functions and values, which would cause a significant cumulative adverse impact on wildlife and fisheries habitat	Less than Significant with limitation on average annual amount of, and implementation of BMP 2.1 Minimize Vegetation Removal, BMP 2.3 Minimize Hardscape in Bank Protection Design, 2.5 Planting, BMP 3.5 Minimize Loss of Aquatic Habitat from Bank Protection Work, and BMP 3.14 Maintain or Provide Escape Cover. Additionally, the proposed 3.1 mitigation for impacts from impervious hardscape and unvegetated rock bank protection would provide a net increase in stream-side habitat over the long run.	Less than Significant assuming individual review of bank protection projects results in redesign or mitigation and implementation of BMPs 2.1, 2.3, 2.5, 3.5, and 3.14.	No direct effect since no bank protection work would be undertaken. There may be a reduction in overall bank vegetation as some loss of riparian vegetation may occur as bank erosion continues, and no program to replant banks is undertaken as with the Preferred Alternative.	Less than Significant with limitation on average annual amount of hardscape, mitigation and implementation of BMPs 2.1, 2.3, 2.5, 3.5 and 3.14.	Less than Significant with limitation on average annual amount of hardscape, mitigation and implementation of BMP 2.1, 2.3, 2.5, 3.5 and 3.14.	Less than Significant with implementation of BMP 2.1, 2.3, 3.5 and 3.14. Since hardscape projects would not be included in this alternative, there would be a lower likelihood of bank protection projects resulting in a cumulative loss of riparian vegetation.
Impact Bio-6: The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife	Significant /Unavoidable even with the implementation of BMP 2.1 Minimize Vegetation Removal, BMP 3.2 Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures, BMP 3.18 Herbicide Use in Aquatic Areas, BMP 3.19 Develop a Biodiversity Monitoring Program and compensatory mitigation program for freshwater and tidal wetlands and riparian vegetation due to the uncertainty on the amount of vegetation loss or conversion and secondary effects on cumulative fragmentation of wildlife habitat.	No effect since this alternative will not resume herbicide use in the Pajaro River Basin.	No effect since there will be no use of herbicides in either basin.	No effect since there will be no use of herbicides in either basin. Without the use of herbicides, there will be a greater amount of vegetation in channels in the Santa Clara Basin, although this will also result in a greater level of disturbance every year when vegetation management is undertaken.	No effect since this alternative will not resume herbicide use in the Pajaro River Basin except for upland use and to control nonnative invasive vegetation.	Significant /Unavoidable even with the implementation of BMPs 2.1, 3.2, 3.18, 3.19 and compensatory mitigation program for freshwater and tidal wetlands and riparian vegetation. This effect will be reduced compared to that of the Preferred Alternative since no work will occur in unmodified channels of the Pajaro River Basin.

Impact	1. Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
Impact Bio-7: Chemical use by the District, especially for rodent control, could adversely affect non-target species	Less than Significant with the implementation of BMP 2.1 Minimize Vegetation Removal, BMP 3.1 Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures, BMP 3.18 Herbicide Use in Aquatic Areas, BMP 3.20 Minimize Herbicide Impacts on Non-target Species, BMP 3.21 Minimize Rodent Control Impacts on Non-target Species and BMP 4.7 Herbicide Use Requirements.	Less Than Significant with implementation of BMPs 2.1, 3.1, 3.18, 3.20, 3.21, and 4.7.	No effect since rodenticides would not be used.	Less Than Significant with implementation of BMPs 2.1, 3.1, 3.18, 3.20, 3.21, and 4.7.	Less Than Significant with implementation of BMPs 2.1, 3.1, 3.18, 3.20, 3.21, and 4.7.	Less Than Significant with implementation of BMPs 2.1, 3.1, 3.18, 3.20, 3.21, and 4.7. Effect slightly less likely to occur since work will not occur on unmodified channels.
Impact Bio-8: Maintenance activities could introduce invasive wildlife species	Less than Significant with implementation of BMP 3.4 Mitten Crab Control Measures.	Less Than Significant with implementation of BMP 3.4.	No effect would occur since no disposal of sediment would occur.	Less Than Significant with implementation of BMP 3.4.	Less Than Significant with implementation of BMP 3.4.	Less Than Significant with implementation of BMP 3.4.
Impact Bio-9: Maintenance activities could directly harm nesting species protected under the Migratory Bird Treaty Act and other statutes	Less than Significant with implementation of BMP 2.1 Minimize Vegetation Removal, 3.2 Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures, BMP 3.9 Retain Woody Materials and Vegetation, and 3.19 Develop a Biodiversity Monitoring Program.	Less Than Significant with implementation of BMPs 2.1, 3.2, 3.9, and 3.19.	No impact since no vegetation management, sediment removal or minor maintenance would occur.	Less Than Significant with implementation of BMPs 2.1, 3.2, 3.9, and 3.19.	Less Than Significant with implementation of BMPs 2.1, 3.2, 3.9, and 3.19.	Less Than Significant with implementation of BMPs 2.1, 3.2, 3.9, and 3.19. Effects would be somewhat reduced since no work would occur in unmodified channels.
Impact Bio-10: Maintenance work conducted in channels could substantially interfere with migration, spawning, incubating, or rearing habitat for native aquatic species	Less than Significant with implementation of BMP 2.2 Minimize Stream Access Impacts, BMP 3.7 Salvage Native Aquatic Vertebrates from Dewatered Channels, BMP 3.9 Retain Woody Materials and Vegetation, BMP 3.11 Avoid Dewatering an Entire Isolated Stream Reach, BMP 3.12 Maintain Low-flow Fish Passage, BMP 3.13 Remove Temporary Fills	Less Than Significant with implementation of BMPs 2.2, 3.7, 3.9, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, and 3.17.	No effect to fisheries since no stream maintenance would occur.	Less Than Significant with implementation of BMPs 2.2, 3.7, 3.9, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, and 3.17.	Less Than Significant with implementation of BMPs 2.2, 3.7, 3.9, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, and 3.17.	Less Than Significant with implementation of BMPs 2.2, 3.7, 3.9, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, and 3.17. Effect would be somewhat reduced since no work would occur in unmodified channels.

Impact	1. Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
	as Appropriate, BMP 3.14 Maintain or Provide Escape Cover, BMP 3.15 Restore Riffle and Pool Configuration of Channel Bottom, 3.16 Restore Spawning Gravels in Work Site Areas, BMP 3.17 Reuse Sediments and Gravels As Appropriate.					
Impact Bio-11: Temporarily suspended sediment can adversely affect aquatic or semi-aquatic species	Less than Significant with implementation of BMP 1.1 Conduct Work During Low Flow Periods, BMP 1.2 Tidal Work Areas, BMP 1.3 Dewater/Bypass Water at Non-tidal Sites, BMP 1.4 Avoid Erosion When Restoring Flows, BMP 1.5 Erosion and Sediment Control Measures, BMP 1.6 Use of Wheel and Track Mounted Vehicles in Stream Bottoms, BMP 1.7 Pump/Generator Set Operations and Maintenance, BMP 1.8 Handle Sediments So As to Minimize Water Quality Impacts, BMP 1.9 Soil Stockpiles, BMP 1.12 Groundwater Management, BMP 1.14 Minimize Sediment Transport Downstream from In-channel Herbicide Sites, BMP 1.15 Prevent Erosion Downstream of Bank Protection Sites, BMP 2.2 Minimize Stream Access Impacts, and BMP 3.10 Conduct In-Channel Work During the Dry Season.	Less Than Significant with implementation of BMPs 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.12, 1.14, 1.15, 2.2, 3.10.	No effect since sediment removal would not occur.	Less Than Significant with implementation of BMPs 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.12, 1.14, 1.15, 2.2, 3.10.	Less Than Significant with implementation of BMPs 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.12, 1.14, 1.15, 2.2, 3.10.	Less Than Significant with implementation of BMPs 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.12, 1.14, 1.15, 2.2, 3.10. Effect would be somewhat less likely to occur because less channel disturbance in unmodified channels and no installation of hardscape.
Impacts Bio-12, Bio-13, Bio-14 and Bio-15: Sediment removal, vegetation management, bank protection and minor stream maintenance activities would adversely	Less than Significant with implementation of BMP 1.14 Minimize Sediment Transport Downstream from In-Channel Herbicide Sites, BMP 1.15 Prevent	Less Than Significant with implementation of BMPs 1.14, 1.15, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5,	No effects since no stream maintenance work will occur.	Less Than Significant with implementation of BMPs 1.14, 1.15, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5,	Less Than Significant with implementation of BMPs 1.14, 1.15, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5,	Less Than Significant with implementation of BMPs 1.14, 1.15, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5,

Impact	1._Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
affect special-status species	Erosion Downstream of Bank Protection Sites, BMP 1.3 Dewater/Bypass Water at Non-tidal Sites, BMP 1.4 Avoid Erosion When Restoring Flows, BMP 1.5 Erosion and Sediment Control Measures, BMP 2.1 Minimize Vegetation Removal, BMP 2.2 Minimize Stream Access Impacts, BMP 2.3 Minimize Hardscape in Bank Protection Design, BMP 2.4 Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessment, BMP 2.5 Planting, BMP 2.6 Mulching, BMP 2.7 Seeding, BMP 3.1 Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures, BMP 3.2 Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures, BMP 3.3 Avoid Serpentine Habitat, BMP 3.6 Remove Sediment from One Side of Large Channels in Alternate Years, BMP 3.7 Salvage Native Aquatic Vertebrates from Dewatered Channels, BMP 3.9 Retain Woody Materials and Vegetation, BMP 3.10 Conduct In-Channel Work During the Dry Season, BMP 3.11 Avoid Dewatering an Entire Isolated Stream Reach BMP 3.12 Maintain Low-flow Fish Passage, BMP 3.15 Restore Riffle and Pool Configuration of Channel Bottom, BMP 3.16	2.6, 2.7, 3.1, 3.2, 3.3, 3.6, 3.7, 3.9, 3.10, 3.11, 3.12, 3.15, 3.16, 3.18, 3.20, 4.5, 4.7, 6.1, 6.4, and 6.5.		2.6, 2.7, 3.1, 3.2, 3.3, 3.6, 3.7, 3.9, 3.10, 3.11, 3.12, 3.15, 3.16, 3.18, 3.20, 4.5, 4.7, 6.1, 6.4, and 6.5.	2.6, 2.7, 3.1, 3.2, 3.3, 3.6, 3.7, 3.9, 3.10, 3.11, 3.12, 3.15, 3.16, 3.18, 3.20, 4.5, 4.7, 6.1, 6.4, and 6.5.	2.6, 2.7, 3.1, 3.2, 3.3, 3.6, 3.7, 3.9, 3.10, 3.11, 3.12, 3.15, 3.16, 3.18, 3.20, 4.5, 4.7, 6.1, 6.4, and 6.5. Effect would be somewhat reduced since no work would occur in unmodified channels.

Impact	**1. Multi-Year Program ~~(Preferred)~~**	**2. Existing Program**	**3. No Work**	**4. No Herbicides**	**5. Modified Pajaro River Basin (Preferred)**	**6. Reduced Work**
	Restore Spawning Gravels in Work Site Areas, BMP 3.18 Herbicide Use in Aquatic Areas, BMP 3.20 Minimize Adverse Effects of Herbicides on Non-target Species, BMP 4.5 Vehicle and Equipment Cleaning, BMP 4.7 Herbicide Use Requirements, BMP 6.1 Spill Prevention, BMP 6.4 Vehicle and Equipment Fueling, and BMP 6.5 Vehicle and Equipment Maintenance.					
Cultural						
Impacts Cul-1 and Cul 2: Disruption of Cultural Resources or Native American Burials	Less than Significant with implementation of BMP 7.1 *Discovery of Cultural Remains or Historical Artifacts* and BMP7.2 *Review of Projects with Native Soil* ~~Protocol for Unexpected Discovery of Archaeological or Cultural Materials and Protocol for Discovery of Native American Burials.~~	Less than Significant with implementation of BMPs 7.1 and BMP7.2 ~~Protocol for Unexpected Discovery of Archaeological or Cultural Materials and Protocol for Discovery of Native American Burials.~~	No effect since no disruption of previously undisturbed native soil would occur.	Less than Significant with implementation of BMPs 7.1 and BMP7.2 ~~Protocol for Unexpected Discovery of Archaeological or Cultural Materials and Protocol for Discovery of Native American Burials.~~	Less than Significant with implementation of	Less than Significant with implementation of BMPs 7.1 and BMP7.2 ~~Protocol for Unexpected Discovery of Archaeological or Cultural Materials and Protocol for Discovery of Native American Burials.~~ Effect less likely to occur since undisturbed cultural materials or burials more likely to occur at unmodified channels where work will be excluded under this alternative.
Public Safety						

Impact	1. Multi-Year Program ~~(Preferred)~~	2. Existing Program	3. No Work	4. No Herbicides	5. Modified Pajaro River Basin (Preferred)	6. Reduced Work
Impact WQ-1. Erosion of mercury containing sediment.	Less than Significant with implementation of BMP 1.10 Avoid Exposing Soils with High Mercury Levels.	Less than Significant with implementation of BMP 1.10.	No effect from stream maintenance since no maintenance work would occur. However, no removal or sealing of mercury laden soils would occur as a result of maintenance activities.	Less than Significant with implementation of BMP 1.10.	Less than Significant with implementation of BMP 1.10.	Less than Significant with implementation of BMP 1.10.

Table V-4
Cost Comparison of Alternatives

WORK TYPE AND LOCATION	1. MODIFIED PAJARO RIVER BASIN ALTERNATIVE (Preferred Alternative)		2. MULTI-YEAR ALTERNATIVE		3. NO PROGRAM (EXISTING)		4. NO WORK ALTERNATIVE		5. NO HERBICIDE ALTERNATIVE		6. REDUCED WORK ALTERNATIVE	
	Annual Cost ($)	20-Year Cost ($)	Annual Cost ($)	20-Year Cost ($)	Annual Cost ($)	20-Year Cost ($)	Annual Cost ($)	20-Year Cost ($)	Annual Cost ($)	20-Year Cost ($)	Annual Cost ($)	20-Year Cost ($)
Santa Clara Basin												
Sediment Removal	$2,766,000	$55,320,000	$2,766,000	$55,320,000	$2,766,000	$55,320,000	$0	$0	$2,766,000	$55,320,000	$2,729,000	$54,580,000
Vegetation Management	$941,000	$18,820,000	$941,000	$18,820,000	$941,000	$18,820,000	$0	$0	$5,316,000	$106,320,000	$625,000	$12,500,000
Total	$3,707,000	$74,140,000	$3,707,000	$74,140,000	$3,707,000	$74,140,000	$0	$0	$8,082,000	$161,640,000	$3,354,000	$67,080,000
Pajaro Basin												
Sediment Removal	$248,000	$4,960,000	$248,000	$4,960,000	$248,000	$4,960,000	$0	$0	$248,000	$4,960,000	$128,000	$2,560,000
Vegetation Management	$515,000	$10,300,000	$308,000	$6,160,000	$915,000	$18,300,000	$0	$0	$915,000	$18,300,000	$233,000	$4,660,000
Total	$763,000	$15,260,000	$556,000	$11,120,000	$1,163,000	$23,260,000	$0	$0	$1,163,000	$23,260,000	$361,000	$7,220,000
Bank Protection												
Repair Work	$3,780,000	$75,600,000	$3,780,000	$75,600,000	$3,780,000	$75,600,000	$0	$0	$3,780,000	$75,600,000	$1,890,000	$37,800,000
Mitigation	$695,000	$13,900,000	$695,000	$13,900,000	$695,000	$13,900,000	$0	$0	$695,000	$13,900,000	$347,500	$6,950,000
Total	$4,475,000	$89,500,000	$4,475,000	$89,500,000	$4,475,000	$89,500,000			$4,475,000	$89,500,000	$2,237,500	$44,750,000
Levee Maintenance	$1,590,000	$31,800,000	$1,590,000	$31,800,000	$1,590,000	$31,800,000	$0	$0	$1,590,000	$31,800,000	$1,590,000	$31,800,000
Debris and Obstruction Removal	$3,170,000	$63,400,000	$3,170,000	$63,400,000	$3,170,000	$63,400,000	$0	$0	$3,170,000	$63,400,000	$3,170,000	$63,400,000
Canals	$52,000	$1,040,000	$52,000	$1,040,000	$52,000	$1,040,000	$0	$0	$79,000	$1,580,000	$52,000	$1,040,000
Mitigation												
Tidal Wetland Restoration	$110,000	$2,200,000	$110,000	$2,200,000	$110,000	$2,200,000			$110,000	$2,200,000		
Freshwater Wetland Creation	$470,000	$9,400,000	$470,000	$9,400,000	$470,000	$9,400,000			$470,000	$9,400,000	assumes overall reduction of approx. 20% in mitigation costs	
Stream & Watershed Protection	$945,000	$18,900,000	$1,020,000	$20,400,000	$945,000	$18,900,000			$945,000	$18,900,000		
Giant Reed Control	$295,000	$5,900,000	$295,000	$5,900,000	$295,000	$5,900,000			$295,000	$5,900,000		
Endangered Species Surveying & Monitoring	$250,000	$5,000,000	$250,000	$5,000,000	$250,000	$5,000,000			$250,000	$5,000,000		
Total	$2,070,000	$41,400,000	$2,145,000	$42,900,000	$2,070,000	$41,400,000	$0	$0	$2,070,000	$41,400,000	$1,720,000	$34,400,000
ALTERNATIVE TOTAL	**$15,827,000**	**$316,540,000**	**$15,695,000**	**$313,900,000**	**$16,227,000**	**$324,540,000**	**$0**	**$0**	**$20,629,000**	**$412,580,000**	**$12,484,500**	**$249,690,000**

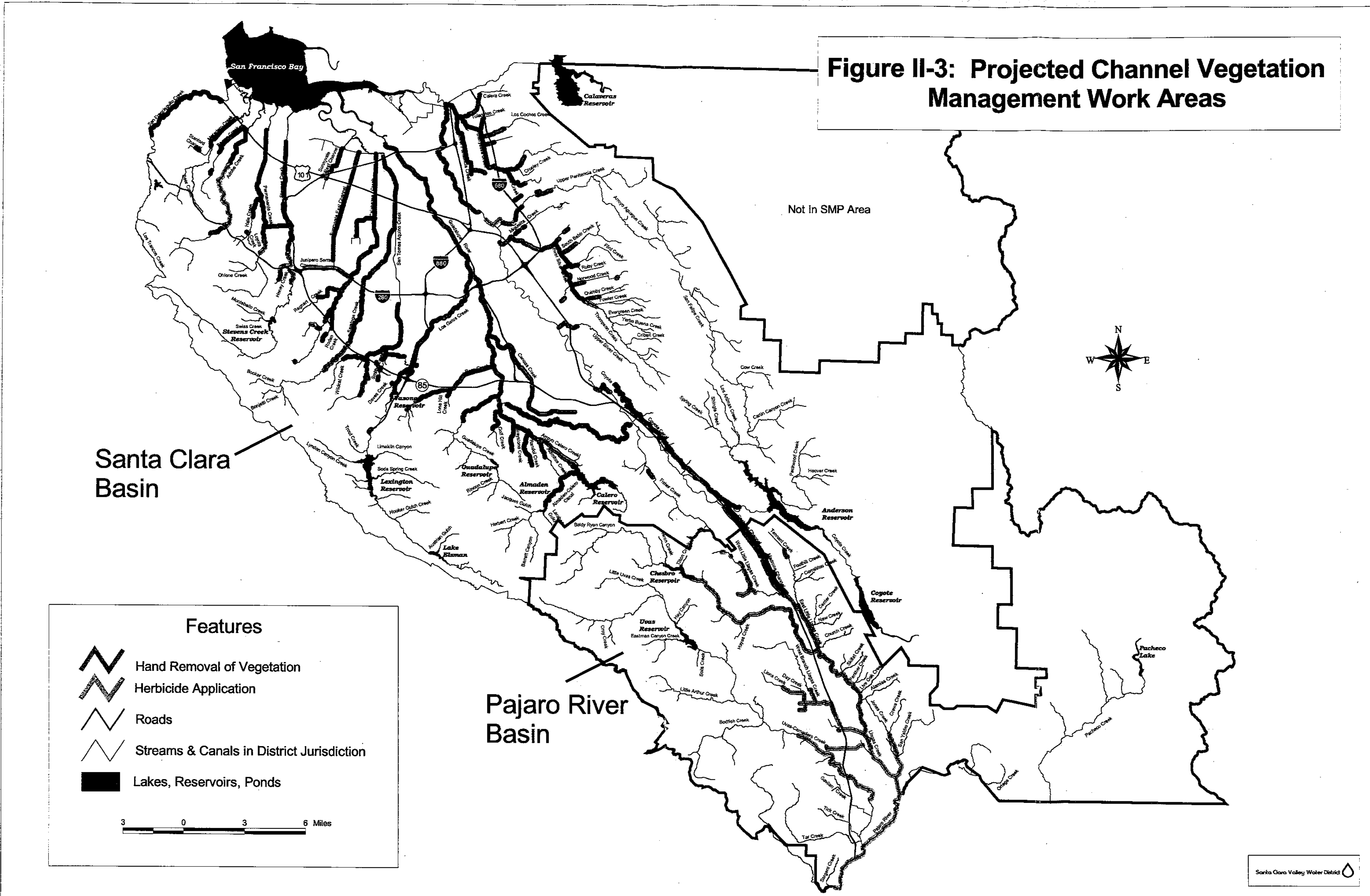
Santa Clara Valley Water District

FINAL EIR

REVISED EIR FIGURES

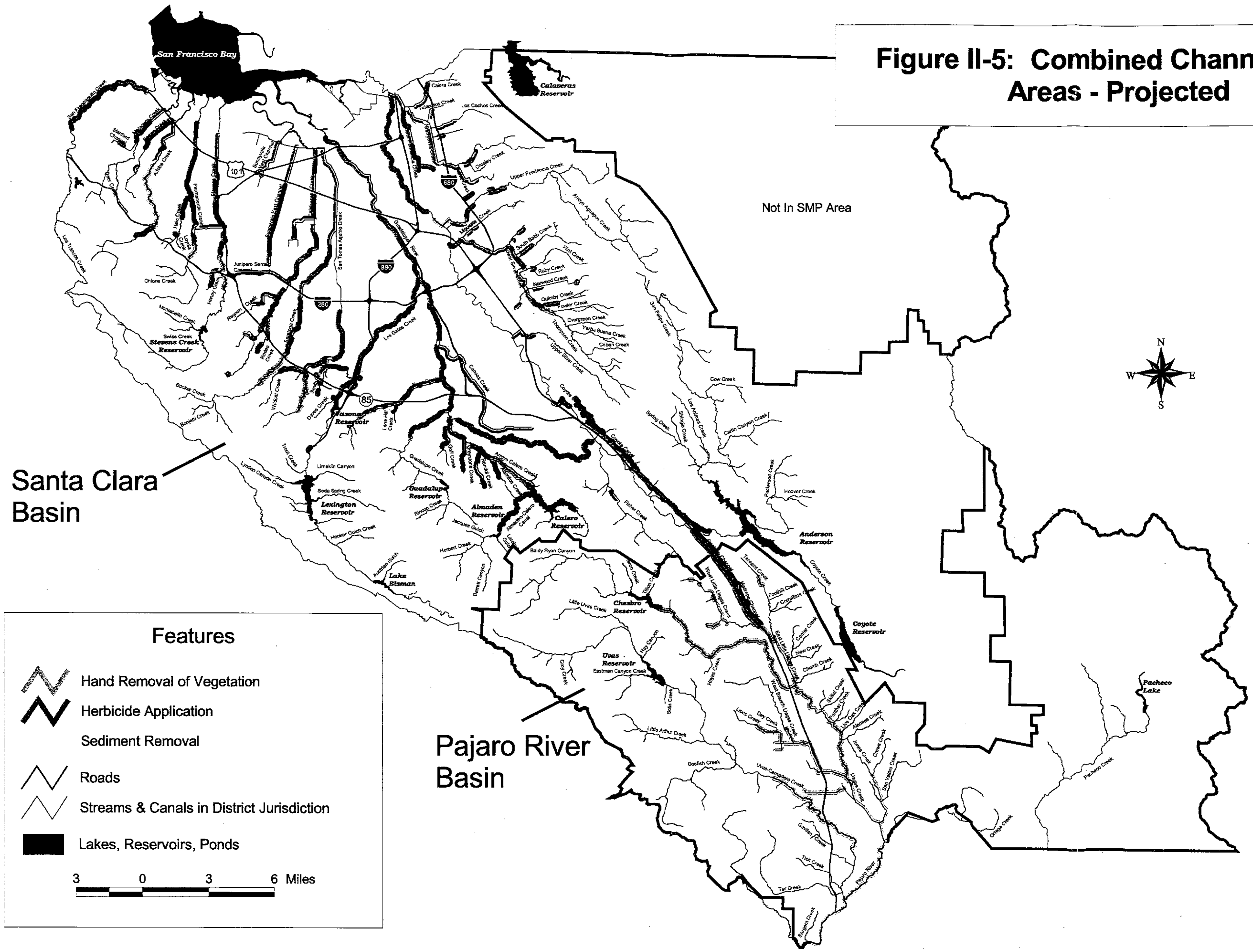
August 21, 2001

Figure II-3: Projected Channel Vegetation Management Work Areas



08/09/2001 2000_176\smp_figure_II-3.apr\ County_SMP-Figure_II-3_11x17_v2

Figure II-5: Combined Channel Work Areas - Projected

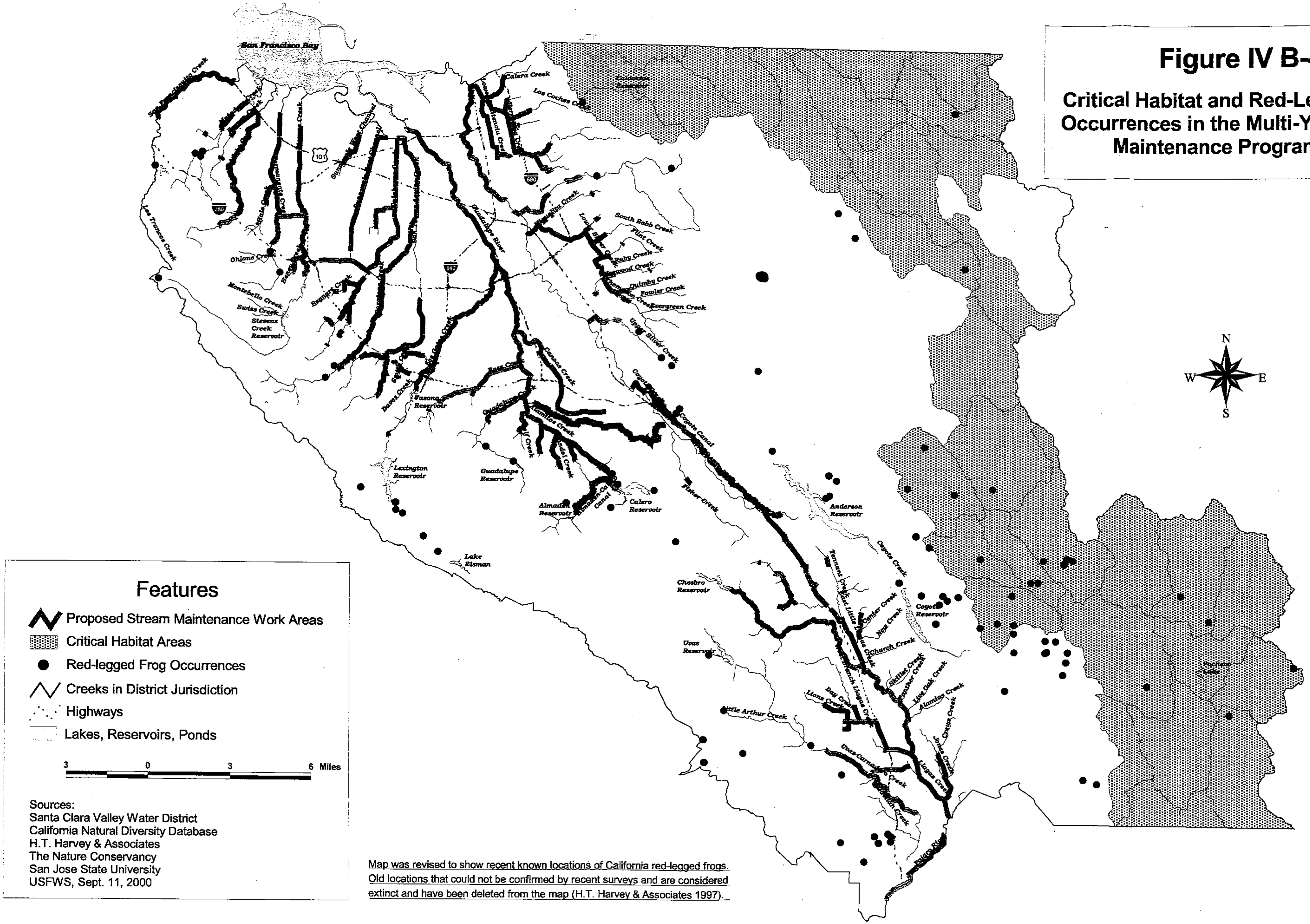


08/09/2001 2000_176\smp_figure_II-3.apr\County_SMP-Figure_II-5_11x17_v2

Santa Clara Valley Water District

Figure IV B-4

Critical Habitat and Red-Legged Frog Occurrences in the Multi-Year Stream Maintenance Program Area



Sources:
Santa Clara Valley Water District
California Natural Diversity Database
H.T. Harvey & Associates
The Nature Conservancy
San Jose State University
USFWS, Sept. 11, 2000

Map was revised to show recent known locations of California red-legged frogs. Old locations that could not be confirmed by recent surveys and are considered extinct and have been deleted from the map (H.T. Harvey & Associates 1997).

08/09/2001 000407\2001_030\County_Critical RL Frog Habitat_11x17_v2

Santa Clara Valley Water District

FINAL EIR

LIST OF REVISIONS TO SMP

August 21, 2001

III.A LIST OF REVISIONS TO SMP DOCUMENT

Revisions to the SMP Document are indicated below. These are organized by page numbers. Revisions to SMP Tables and Appendices E and G, and a MMRP are attached at the end of this section.

Page 1.5, add to third paragraph

3. Bank Protection

Bank protection involves any action by the District to repair streambanks that are eroding as well as preventative erosion protection. The District implements bank protection when the problem (1) causes or could cause significant damage to a property or adjacent property, (2) is a public safety concern, (3) negatively affects transportation, (4) negatively affects beneficial uses of surface water, (reference Chapter 2, Beneficial Uses, California Regional Water Quality Control Board, San Francisco Bay Region, Water Quality Control Plan) or (5) negatively affects riparian habitat. Repairs may take several forms ranging from the installation of "hard" structures (i.e., rock, concrete, sack concrete, gabions) to the use of "soft" structures (i.e., willow brush mattresses, log crib walls, pole plantings), or a combination of hard and soft structures. Bank protection also includes preventative maintenance to ensure that banks do not erode in the future. Such bank protection can reduce sedimentation and improve water quality.

P. 2-13, second paragraph

BANK PROTECTION

1. Overview

Bank protection involves an action by the District to repair streambanks that are eroding or are in need of preventative erosion protection. The District implements bank protection when the problem (1) causes or could cause significant damage to a property or adjacent property, (2) is a public safety concern, (3) negatively affects transportation or recreational use, (4) negatively affects water quality or beneficial uses, or (5) negatively affects riparian habitat. Repairs may take several forms: ~~from installing "hard" structures (e.g., rock, concrete, sack concrete, gabions) to "soft" structures (e.g., willow brush mattresses, log crib walls, pole plantings) or a combination of hard and soft structures.~~ Appendix E includes descriptions and cross-sections of over 30 designs.

P. 2-14, fourth paragraph

2. Bank Protection Methods

The general design criteria and plan for each of the bank protection methods used by the District are included in Appendix E. Figure E-1 in Appendix E presents the process for the selection of bank protection alternatives. In addition to these criteria, design of a particular bank protection project includes evaluation of other site-specific characteristics such as bank slope, shear stress, location (such as the inside or outside of a curve), soil type, flow velocity, characteristics of the channel adjacent to the site, and the available right of way. The site is evaluated for the repair method consistent with the characteristics of the site. Revegetation potential is also evaluated for each bank protection project. This potential is not only dependent upon the method of bank protection used, but also the physical properties of the stream where the repair is taking place.

P 2-16, second paragraph

In the past ~~14~~ 13 years, the total length of bank protection activities in an individual year ranged from approximately 1,500 to 13,000 feet. The District has completed an average of 38 bank protection jobs per year, based on historical records, but there is considerable deviation. For example, there were nine jobs in 1994 and 73 in 1987. A more detailed summary of historical bank protection activities is provided in Table 2-3.

P. 3-4, fourth paragraph, add last sentence

Annually, in November, District staff will hold a "Lessons Learned" meeting to evaluate the effectiveness of both resource protection and maintenance methods used in the preceding construction season. The information and assessments will be used to update BMPs, Stream Maintenance Program processes, and the Maintenance Guidelines and to create a greater understanding of how to accomplish environmentally-sensitive, fiscally sound maintenance work. The "lessons learned" meeting will include BMPs as a specific topic of discussion on the agenda. The annual report will summarize that discussion and any resulting modifications to BMPs.

P. 3-5, second & third paragraph

A final annual report detailing what work was accomplished will be submitted to the District's Chief Executive Officer, USACE, USFWS, CDFG, BCDC, NMFS, the San Francisquito Joint Powers Authority and RWQCB at the end of the maintenance season (prior to January 1) which will specify which projects were completed for the year including type of work, location, and size of the project. Sediment removal, vegetation management, and bank protection work which has been repeated under the SMP will be distinguished from areas where such work is being undertaken for the first time under the SMP. Any modifications of BMPs recommended at the annual lessons learned meeting will be summarized in the annual report.

In addition to reporting on the maintenance activity completed for the year, the District will also provide reporting on the implementation of the mitigation program, including maps showing the location of compensatory mitigation sites, a description of the current stage in the planning and implementation schedule, progress towards success criteria, and a general summary of maintenance of mitigation sites. For the first 5 years of the program, the District will provide the agencies with a tour of representative work areas (especially those along target streams and watersheds) for that year and all mitigation sites. This tour will take place after completion of the work season. Preconstruction photographs will also be provided.

P. 4-11, sixth paragraph

Potential impacts to steelhead will be avoided by timing stream maintenance projects in streams where there are or could be steelhead so that work is conducted outside of the migration and spawning season. Steelhead migration and spawning season is generally between December ~~to June 30.~~ to June 15 in Santa Clara county streams.

P. 5-2, additional paragraph at end of page

All sites for mitigation will either be held in ownership or easement by the District or another cooperating public agency or private conservation organization, or have a conservation easement held by one of these agencies.

P. 5-6, third paragraph

The District's Board of Directors has expressed the desire to mitigate for wetland impacts by creating new wetlands. At this time, the mitigation proposal includes three sites where there are certainties that new wetlands can be created. The District will continue searching for additional sites for freshwater wetland creation. An extensive search initially conducted in 1997 will be reviewed. The District is currently investigating the feasibility of establishing freshwater wetlands as mitigation at the Coyote Valley Campus Industrial area and at the South County Regional Wastewater Authority (SCRWA) adjacent to Llagas Creek in the City of Gilroy. A preliminary investigation of the SCRWA site has found approximately 150 acres of the site could potentially be converted to wetland habitat (Philip Williams & Associates and H.T. Harvey & Associates, 2000). If additional freshwater wetland sites are located, then the Stream and Watershed Protection component of the mitigation package would be reduced. The sites currently identified for freshwater wetland creation are described further below.

P. 5-11, fourth paragraph

The mitigation component will focus on preservation and improvement of streams that are generally in a fairly undisturbed state and in good ecological condition. Streams that are currently disturbed, but that can be returned to good ecological condition under the program (as defined under MMRP criteria), can also be included.

P. 5-11, fifth paragraph

This effort consists primarily of land acquisition, but also provides for some restoration, rehabilitation, and/or management ~~of acquired lands~~ to improve or protect stream condition (see MMRP). Acquisition will provide 92 acres of mitigation credits; and restoration and management on selected parcels will provide 10 acres of credit. The relative contribution of these subcomponents could be adjusted based on opportunity and resource needs identified as the mitigation component progresses.

P. 5-11, new sixth paragraph

Restoration, rehabilitation and management projects may be conducted on land acquired under this program, and may be also conducted on other lands. Other lands must meet the same physical and location criteria as those for land acquisition parcel selection (i.e., stream size, stream condition, habitat contiguity, basin and watershed locations, and land management).

P. 5-13, second paragraph

Each acquired property will be further evaluated to determine if the stream resources would benefit from restoration or management actions. Other lands not acquired under this program, but meeting the land selection criteria and available for mitigation use, will also be evaluated. Examples of the many types of restoration or management actions that could be undertaken to improve stream health include: removal of nonnative riparian plant species and revegetation with native species, repair and rehabilitation of denuded or otherwise degraded stream segments, replacement of in-stream road crossings with more environmentally-sensitive crossings, installation of erosion control measures on roads adjacent to streams (dirt or paved roads run parallel to most sizeable streams in the county), and installation of fencing to limit cattle access to the riparian area.

P. 5-14, fourth paragraph

The projected ~~total Stream Maintenance Program~~ cost for the Stream & Watershed Protection Mitigation cost is based on an average estimated land value of $15,000 per acre. Most land is expected to cost less than this amount. Land cost under this Stream Maintenance Program is not-to-exceed $25,000 per acre.

P. 5-22, (see revised SMP Table 5-3)

P. 6-22, end of page

13. Pajaro River Basin Study (District Project No. 501601)

Purpose: Continued liaison with the Pajaro River Watershed Flood Prevention Authority (Pajaro Authority), U.S. Army Corps of Engineers, plus other agencies and organizations to coordinate a watershed management plan and feasibility study to remedy water quality, flood damage and other problems in the Pajaro River Basin.

Location: Pajaro River watershed.

Environmental Resources: Water quality and watershed habitats

Type of Documents: A Final Reconnaissance Report and Draft Project Management Plan is due to be completed by the U.S. Army Corps of Engineers in 2001. Implementation documents will follow.

Schedule for Development and Implementation: Ongoing. Local agencies and organizations have been working with state and federal agencies on this watershed for over a decade. The current period can be characterized as a period of development and implementation of specific watershed improvement measures.

Participants: Santa Cruz, San Benito, Santa Clara and Monterey Counties, San Benito County Water District, Monterey County Water Resources Agency, Santa Cruz Zone 7 Flood Control District, and the Santa Clara Valley Water District are the eight agencies that comprise the Pajaro Authority. The U.S. Army Corps of Engineers and other agencies are also involved with the proposed work. Business, environmental and other interest groups are also active participants in the basin study efforts.

Linkages: The Pajaro River Basin Study project provides ongoing coordination to facilitate multi-jurisdictional planning and implementation of flood control protection, water quality improvement and habitat restoration. Stream maintenance and mitigation is a central issue for the Pajaro Authority JPA and others, which links it to the District Stream Maintenance Program.

14. San Francisquito Creek Coordination (District Project No. 102805)

Purpose: Continued liaison with the San Francisquito Creek Joint Powers Authority, U.S. Army Corps of Engineers, and San Francisquito Creek Watershed Council, previously known as Coordinated Resource Management and Planning Group (CRMP), to coordinate a multi-objective watershed improvement project, supportive projects and cost allocations.

Location: San Francisquito Creek watershed.

Environmental Resources: Water quality and watershed habitats

Type of Documents: The San Francisquito CRMP prepared a Draft Watershed Management Plan in 1997, and a Reconnaissance Investigation Report of San Francisquito Creek in 1998. In 2000, a San Francisquito Creek Bank Stabilization and Revegetation Master Plan Report was sponsored and completed by the members of the JPA (initiated prior to hiring staff for the JPA). Since CEQA and regulatory permits have not been completed for any of these documents, implementation cannot be started. The report serves as a guideline for acceptable bank stabilization and revegetation projects. There are also interim maintenance efforts under design.

Schedule for Development and Implementation: Ongoing. Local groups have been working on this watershed since the early 1990s. The current period can be characterized as a period of development and implementation of specific watershed improvement measures.

Participants: The cities of East Palo Alto, Menlo Park and Palo Alto, plus San Mateo County and the District comprise the San Francisquito Creek Joint Powers Authority membership. The U.S. Army Corps of Engineers and other agencies are also involved with the proposed work. Business, environmental and other interest groups are also active participants in the JPA efforts.

Linkages: The San Francisquito Creek Coordination project provides ongoing coordination to facilitate multi-jurisdictional planning and implementation of flood control protection, water quality improvement and habitat restoration. Stream maintenance and mitigation is a central issue for the JPA, CRMP and others, which links it to the District Stream Maintenance Program.

P. 7-1, sixth paragraph

Philip Williams & Associates and H.T. Harvey & Associates. 2000. South County Regional Wastewater Authority Site Wetland and Riparian Habitat Mitigation Opportunities and Constraints Analysis. September 22, 2000.

Appendix A - page A-4

~~Hard Structures~~	~~A type of bank protection structure incorporating rock, riprap, sack concrete, gabion baskets and mattresses, or concrete. These structures are inert and rigid.~~

Appendix A - page A-8

Revetment	~~A term used to describe any number of hard structures used in bank protection.~~ See Riprap.

Appendix A - page A-8

Riprap	~~Loose rock or concrete of varying size, typically brought to a site. Used to protect channel banks from scouring forces.~~ A layer of large, durable material (usually rock) used to protect a stream bank from erosion.

Appendix A - page A-9

Scour	~~The clearing and digging action of flowing air or water, especially the downward erosion caused by stream water in removing material (e.g., soil, rocks) from a channel bed or bank or around in-channel structures.~~ The localized removal of material from the street bed by flowing water.

Sediment	~~Solid material, both mineral and organic, that settles to the bottom of channels, canals, percolation ponds, or behind dams.~~ Fragmental material that originates from weathering of rocks and decomposition of organic material that is transported by, suspended in, and eventually deposited by water or air, or is accumulated in beds by other natural phenomena.

Appendix A - page A-10

~~Soft Structures~~	~~A type of bank protection structure incorporating biological materials like seeds, plants, plant parts (e.g. root wads), or combination of vegetation oand inert materials (e.g., bruch mats/ sills, wattles, fascines, or branch packing/layering).~~

Appendix A - page A-12

Turbidity	~~The pollution of water by dissolved or suspended solids. The cloudiness of water, caused by suspended sediment. Turbidity is measured by the degree to which light penetration is blocked because the water is muddy or cloudy.~~ Relative water clarity; a measurement of the extent to which light passing through water is reduced due to suspended material.

Santa Clara Valley Water District

FINAL EIR

REVISED SMP TABLES

August 21, 2001

REVISED TABLE 2-2
Herbicide Use for the Multi-Year Stream Maintenance Program

Product Name	Chemical Type	Use	Average Annual Amount
Gallery	Isoxaben	Preemergent, selective to broadleaf weeds. Used on levee slopes and maintenance roads.	447 pounds
Garlon 3A	Triclopyr, triethylamine salt	Postemergent, selective to broadleaf weeds. Used on levee slopes.	5 gallons
Garlon 4	Triclopyr, triethylamine salt	Postemergent, selective to broadleaf weeds. Used on levee slopes.	62 gallons
Oust	Sulfometuron	Preemergent, nonselective. Used on access roads/firebreaks.	206 ounces
Pendulum	Pendimethalin	Preemergent, selective to grasses. Used on access roads/firebreaks.	3,576 pounds
Aqua Master (formerly known as Rodeo)	Glyphosate	Postemergent, nonselective. Approved for aquatic use. Used in channels.	~~750~~ 595 gallons
Roundup Pro	Glyphosate	Postemergent, nonselective. Roundup used in upland areas on maintenance roads/firebreaks.	1,021 gallons
Surflan (AS)	Oryzalin	Preemergent, selective to grasses. Used on access roads, firebreaks, and landscape/revegetation areas.	~~1,269 ounces~~ 90 gallons
Telar	Chlorsulfuron	Preemergent, selective to broadleaf weeds. Used on levee slopes and maintenance roads.	2,140 ounces
Transline	Clopyralid	Postemergent, selective to specific broadleaf families. Some minor preemergent activity. Used for control of yellow star thistle on levee slopes/upland parcels.	16 gallons
Target Pro-spreader/activator or Wilbur-Ellas R-11 spreader activator		Surfactant used with Aqua Master®, Garlon, and Transline products.	~~310~~ 259 gallons

Table 2-4: New Work Areas

Creek Name	Work Activity	From Station	To Station	Extent of Work (ft)	Freshwater Wetland Impacted (ac)
JONES CREEK	Herbicide Only	0	1,500	1,500	0
JONES CREEK	Sediment Rem/Veg. Mng Overlap	1,500	13,500	12,000	1
EDMUNDSON CREEK	Herbicide Only	0	4,500	4,500	0
PRINCEVALLE DRAIN	Herbicide Only	0	13,700	13,700	0
WEST LITTLE LLAGAS CREEK	Herbicide Only	18,000	18,200	200	0
WEST LITTLE LLAGAS CREEK	Herbicide Only	20,200	21,000	800	0
MADRONE CHANNEL	Herbicide Only	0	6,900	6,900	1
MADRONE CHANNEL	Sediment Rem/Veg. Mng Overlap	6,900	22,000	15,100	2
	Vegetation Management Only Total (miles)		acres:	5	1.7
	Sediment Rem/Veg. Mng Overlap Total (miles)		acres:	5	2.6
			acres:	10	4
ADOBE CREEK	Channel Sediment Removal	16,400	17,000	600	0
ADOBE CREEK	Channel Sediment Removal	17,000	19,500	2,500	1
PERMANENTE DIVERSION	Channel Sediment Removal	1,000	1,925	925	0
PERMANENTE DIVERSION	Channel Sediment Removal	1,925	4,595	2,670	0
PERMANENTE DIVERSION	Channel Sediment Removal	4,595	4,728	133	0
PERMANENTE DIVERSION	Channel Sediment Removal	4,728	5,000	272	0
PERMANENTE DIVERSION	Channel Sediment Removal	6,500	7,150	650	0
STEVENS CREEK	Channel Sediment Removal	13,000	13,121	121	0
STEVENS CREEK	Channel Sediment Removal	13,121	13,264	143	0
STEVENS CREEK	Channel Sediment Removal	13,264	13,500	236	0
STEVENS CREEK	Channel Sediment Removal	16,500	16,811	311	0
STEVENS CREEK	Channel Sediment Removal	16,811	17,000	189	0
CALABAZAS CREEK	Channel Sediment Removal	19,000	19,282	282	0
CALABAZAS CREEK	Channel Sediment Removal	19,282	19,400	118	0
REGNART CREEK	Channel Sediment Removal	2,200	2,255	55	0
REGNART CREEK	Channel Sediment Removal	2,255	2,355	100	0
REGNART CREEK	Channel Sediment Removal	2,355	4,700	2,345	0
SMITH CREEK	Channel Sediment Removal	2,400	2,879	479	0
SMITH CREEK	Channel Sediment Removal	2,879	3,540	661	0
SMITH CREEK	Channel Sediment Removal	3,540	3,600	60	0
SUNNYVALE EAST CHANNEL	Channel Sediment Removal	30,200	31,040	840	0
SUNNYVALE EAST CHANNEL	Channel Sediment Removal	31,040	31,500	460	0
Alamitos Creek	Channel Sediment Removal	4,000	4,022	22	0
Alamitos Creek	Channel Sediment Removal	4,022	4,166	144	0
Alamitos Creek	Channel Sediment Removal	4,166	4,500	334	0
GUADALUPE CREEK	Channel Sediment Removal	103,500	104,500	1,000	1
GUADALUPE CREEK	Channel Sediment Removal	104,500	105,000	500	0
McAbee Creek	Channel Sediment Removal	2,400	2,500	100	0
Hendry Creek	Channel Sediment Removal	140	240	100	0
BERRYESSA CREEK	Channel Sediment Removal	16,700	17,900	1,200	0
BERRYESSA CREEK	Channel Sediment Removal	17,900	20,100	2,200	0
BERRYESSA CREEK	Channel Sediment Removal	20,100	20,500	400	0
BERRYESSA CREEK	Channel Sediment Removal	22,300	23,000	700	0
LOS COCHES CREEK	Channel Sediment Removal	2,400	3,275	875	0
LOS COCHES CREEK	Channel Sediment Removal	3,275	6,310	3,035	0
LOS COCHES CREEK	Channel Sediment Removal	6,310	6,500	190	0
LOWER SILVER CREEK	Channel Sediment Removal	8,000	8,215	215	0
LOWER SILVER CREEK	Channel Sediment Removal	8,215	8,700	485	0
LOWER SILVER CREEK	Channel Sediment Removal	8,700	8,800	100	0
UPPER SILVER CREEK	Channel Sediment Removal	7,500	8,500	1,000	0
UPPER SILVER CREEK	Channel Sediment Removal	8,500	9,500	1,000	0
FLINT CREEK	Channel Sediment Removal	6,200	6,800	600	0
LLAGAS CREEK	Channel Sediment Removal	36,000	38,500	2,500	0
LLAGAS CREEK	Channel Sediment Removal	38,500	41,000	2,500	0
	Sediment Removal Total (miles)		acres:	6	3
	Sediment Removal - Pajaro Basin (miles)		acres:	1	0
	Sediment Removal - Santa Clara Basin (miles)		acres:	5	3

Revised Table 5-1
Compensatory Stream Vegetation and Special Status Species Mitigation

Mitigation Component	Location	Size of Mitigation	Compensates for Impacts to:	Description	Installation Date
Tidal Wetland Restoration	Pond A-4	30 acres	30 acres of tidal wetlands: 29 acres from sediment removal 1 acre from vegetation mgmnt. Will provide foraging habitat for California clapper rail and black rail.	Restore diked salt evaporator pond to historical tidal marsh conditions	~~2006~~ 2007
Freshwater Wetland Creation	Three sites currently identified:		14 acres of freshwater wetland in stream channels: 10 acres in Santa Clara Basin 4 acres in Pajaro River Basin		
	Los Capitancillos	3 acres, Santa Clara Basin		Convert annual grasslands to seasonal or perennial wetlands adjacent to Guadalupe River	2002
	Coyote Lakes Park Site 10A	7 acres, Santa Clara Basin		Convert ruderal grasslands to near-perennial wetlands adjacent to Coyote Creek	~~No date yet~~ 2005
	Church Pond No. 2	4 acres, Pajaro River Basin		Convert open water in inactive percolation pond to wetland bench	2003
Stream and Watershed Protection	Undeveloped parcels with streams	Approx. ~~920 to 1,210~~ 820 to 1,080 acres purchased and additional restored	~~102~~ 92 acres of freshwater wetlands: 74 acres in Sta Cl Basin streams ~~21~~ 11 acres in Paj Bas. streams 7 acres in canals Includes preservation/restoration of 108 acres of mitigation on land known to support California red-legged frog and western pond turtle.	Preserve, protect, and improve streams and associated ~~wetlands~~ watersheds	As lands become available in first 10 years. See schedule in MMRP.
Giant Reed Control	Throughout county	125 acres	~~78~~ 66 acres of riparian vegetation from vegetation management: 32 acres in Santa Clara Basin ~~46~~ 34 acres in Pajaro River Basin And, 59 acres of the total 125 acres of Giant Reed Control is being provided for lag time in implementing and effective functioning of ~~other~~ mitigation components	Control giant reed outbreaks and provide associated mapping, revegetation, education, and coordination throughout county	2002-2012

TABLE 5-3

Conceptual Agreements - Multi-Year Stream Maintenance Program

These are concepts on the Multi-Year Stream Maintenance Program agreed to between regulatory agencies and District staff in four meetings between June and September 2000. The regulatory agencies represented were USACE, USEPA, USFWS, CDFG, and RWQCB—San Francisco Region.

* Subsequent to the year 2000 meetings with agencies, the District revised the bank protection program to include additional mitigation. See revised Appendix E of the SMP.

	Program Description
#1	The primary types of work covered in the routine Stream Maintenance Program are sediment removal, vegetation management, and bank protection in and adjacent to stream channels and canals. Vegetation management is defined as including manual and mechanical removal and herbicide spraying of vegetation.
#2	The Stream Maintenance Program may qualify for multiyear permits (or other forms of multiyear approvals) from the USACE, the California RWQCBs, and the CDFG. Effects on species listed under the federal ESA will require review by the USFWS and/or NMFS.
#3	The permit applications will include a program description, impact assessment, mitigation proposal, monitoring plan, and assessment of effects on rare species. The permit applications will be submitted in January or February 2001, the draft EIR will be released for public review 1 month later, and the EIR will be finalized in June 2001. It is assumed that a decision on the permits can be finalized by July 2001 or 6 months after submittal of the permit application, whichever occurs latest.
#4	Work, impact, and mitigation areas will be described in both linear feet and acres in the EIR and permit applications, and will be identified separately for each basin (San Francisco Bay and Monterey Bay). Amounts of work of different types will be identified by jurisdiction of each agency.
	Impact Analysis
#5	The one-time accounting approach for impacts is acceptable. Repeatedly mitigating for impacts at the same location will not be required for routine stream maintenance.
#6	Impacts to wetlands in concrete channels are currently treated in the same manner as those in earthen channels
#7	Replacement of existing bank protection structures with similar or less impacting designs has minimal impacts and is considered a routine maintenance activity.

#8	No consensus was reached on the level of impact of new bank protection work and whether it should be considered routine stream maintenance. All agencies recognize the proposals the District has incorporated into the bank protection program to incorporate more biotechnical designs; however, they find that there is still the potential for impacts which are cumulatively not minimal. They encourage the District to further investigate residual impacts of the bank protection program._*_
Mitigation	
#9	Mitigation will match impacts by basin (San Francisco Bay vs. Monterey Bay drainages).
#10	It is preferable to complete mitigation prior to impacts. As much mitigation should be completed in the early years of the program as possible.
#11	Larger, sustainable sites are preferable to smaller, fragmented sites. Adjacent land uses, especially those in public ownership, will be evaluated to determine sustainability and suitable size of a site.
#12	Specific streams or stream reaches will be targeted for mitigation, restoration, and enhancement, where the most value and function will be obtained. When looking at values and functions, the net gain in value and function will be considered in addition to the existing values and functions. Areas outside of target streams can also be considered. Target streams will be identified in the EIR and permit applications.
#13	Creation of freshwater and tidal wetlands must be included as part of the mitigation program. Other mitigation techniques, such as invasive species control and land preservation, are acceptable as long as the mitigation package includes creation of wetlands.
#14	Land preservation opportunities should be sought in the lower and middle watersheds as well as the upper watershed. Greater functions and values will be recognized for preservation activities that include some component of ecological restoration or management of natural resources.
#15	A comprehensive program of controlling nonnative, invasive riparian vegetation (such as *Arundo donax*) is acceptable as mitigation for the impacts of vegetation management.
#16	A comprehensive program of controlling nonnative invasive tidal vegetation (*Spartina alterniflora*) is acceptable as either partial mitigation for the impacts on tidal wetlands, or as compensation for the temporal loss of tidal wetlands when impacts precede mitigation.
#17	An equal length of creekside will be planted with riparian species for any new impervious bank protection projects (concrete lining, gunite, sack concrete but not rock riprap). Agencies recommend that this type of planting not be placed at the top of bank only and not consist of infilling among other vegetation. The District will include guidance in the EIR and permit application on how such replacement planting sites will be selected._*_

#18	All agencies encourage the District to reconsider the need for mitigation to address the impacts of the bank protection program.*
#19	Mitigation will be coordinated and linked within the Stream Maintenance Program, with other District projects (especially the multiple species Habitat Conservation Plan [HCP]), and with preservation and enhancement efforts of others.
#20	The agencies recommend that all potential mitigation sites be identified in the EIR and permit applications, or a commitment be made to have a percentage of mitigation done within specific target streams. The feasibility of providing mitigation at either the specific sites or within the target streams will be evaluated and discussed in these documents, and interim deadlines will be provided. The agencies suggest that the 5-year point of the permit may be a good period to evaluate the status of the mitigation program.
Reporting	
#21	Work areas and mitigation efforts will be tracked on an annual basis and reported to the agencies.
#22	For the first 5 years, the District will provide the agencies with a tour after completion of the work season of representative work areas (especially those along target streams) for that year and all mitigation sites. Preconstruction photographs will be provided.

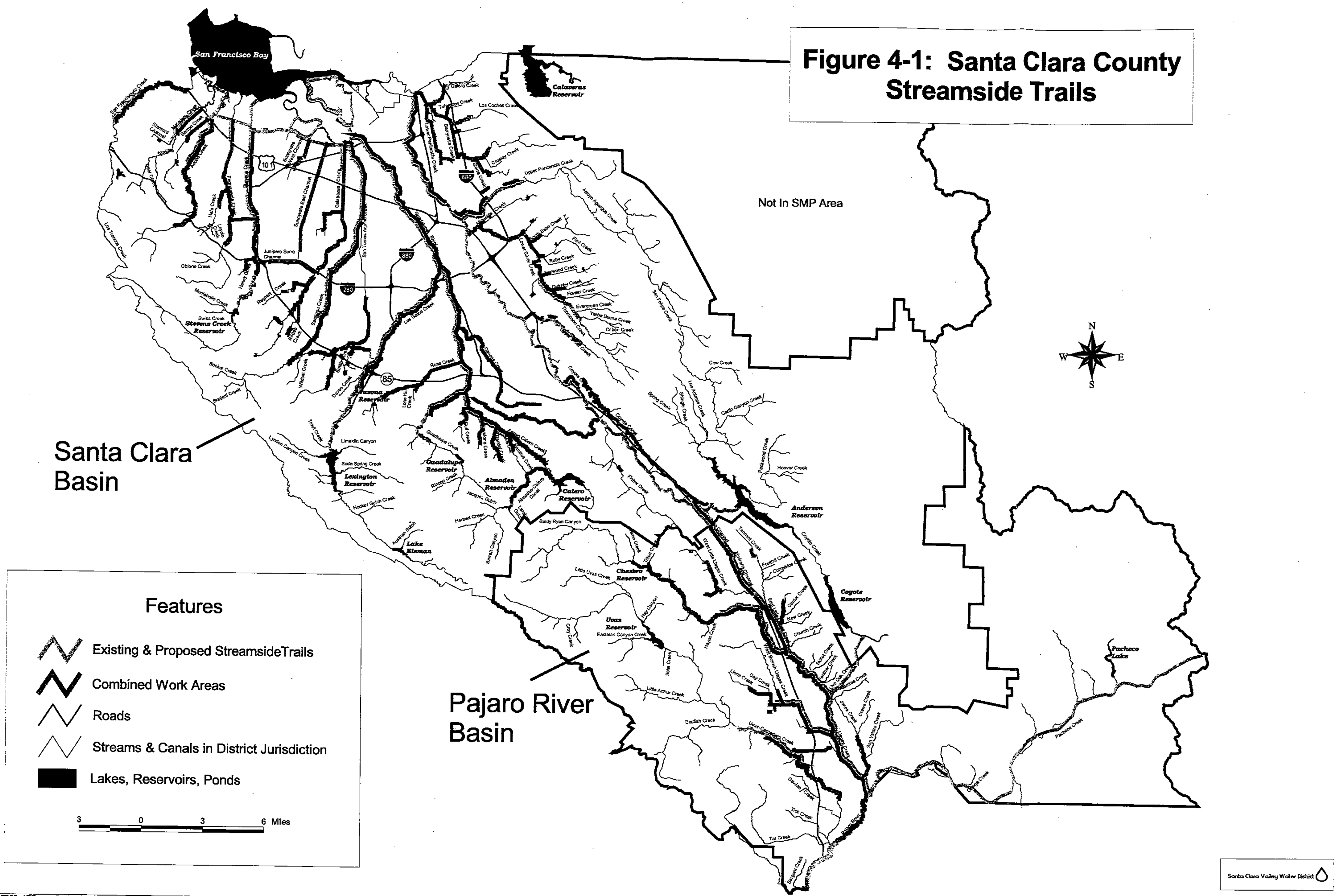
Santa Clara Valley Water District

FINAL EIR

NEW SMP FIGURE 4-1

August 21, 2001

Figure 4-1: Santa Clara County Streamside Trails



Features

Existing & Proposed StreamsideTrails

Combined Work Areas

Roads

Streams & Canals in District Jurisdiction

Lakes, Reservoirs, Ponds

3 0 3 6 Miles

Santa Clara Valley Water District

08/09/2001 2000_176\smp_figure_II-3.apr\County_SMP-Existing & Proposed Trails_11x17_v1

Santa Clara Valley Water District

FINAL EIR

SMP APPENDIX E

Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities

August 21, 2001

Revised SMP Appendix E

Santa Clara Valley Water District
Stream Maintenance Program
Programmatic Impact Assessment and Mitigation for
Routine Bank Protection Activities
July 18, 2001

1.0 OVERVIEW

Bank protection involves any action by the District to repair stream banks that are eroding as well as to prevent bank erosion. The District may implement stream bank repair when the continuing stream degradation: (1) causes or could cause significant damage to a property or adjacent property, (2) is a public safety concern, (3) adversely affects transportation or recreational use, (4) adversely impacts beneficial uses of surface water, or (5) adversely affects riparian habitat. Bank protection also includes preventive maintenance to ensure that banks do not erode in the future. Such erosion protection reduces sedimentation and improves water quality.

The District uses a wide range of bank protection techniques. Repairs can take several forms, ranging from the use of soft structures (i.e., willow brush mattresses, log crib walls, pole plantings) to the installation of hard structures (i.e., rock blanket, concrete, sack concrete, gabions) or combination of hard and soft structures.

Riparian corridors in Santa Clara County provide a remarkable range of biological functions. These functions range from fish and other aquatic habitat in the streams themselves to foraging and nesting habitat for birds in the woodland canopy above to movement corridors for numerous terrestrial species. Bank protection activities may alter the biological resource values of the stream environment by changing the conditions in the stream itself or by changing the vegetation surrounding the stream.

The Stream Maintenance Program (SMP) provides for routine bank protection activities throughout the District's jurisdiction. The SMP ~~proposes to~~ incorporates a programmatic impact assessment and mitigation for routine bank protection activities that is intended to meet the majority of concerns for the function of aquatic and riparian habitats in the streams. This programmatic assessment will be supplemented by other DEIR sections that describe specific potential impacts to water quality, listed species, etc., from bank protection and other SMP components and provide the numerous (BMPs) that address those impacts.

2.0 BANK PROTECTION WORK

Based on ~~15~~13-year historical records, the District estimates that an average of roughly one linear mile of stream banks may be repaired annually. Many repair sites are small and are not easily predicted. The quantity and location of bank protection activities varies greatly from year to year, based on watershed conditions (heavy rains often lead to more work in the following year), degree of safety hazard, work load, budget, and quantity of other priority work to be done in a given year. The description of historical bank protection in the SMP shows that a greater concentration of bank protection occurs in cities and semi-rural foothills of the Santa Clara Valley. Actual future bank protection work could potentially be done anywhere it is needed within District jurisdiction.

Many areas receiving bank protection are void of native riparian vegetation as a consequence of erosion. Nevertheless, over the ~~10-year~~ 20-year life of this proposed program ~~permit~~, some ~~10~~ 20 miles of the approximately 1650 miles of bank under District jurisdiction can be expected to be modified, and some increment of existing riparian vegetation can be expected to be lost. Soft erosion control methods are not always adequate to protect life and property. Therefore, some portion of that ~~10~~ 20 miles will be protected with hardscape methods, and riparian vegetation may be precluded from reestablishing. Under the Stream Maintenance Program, the District has committed to installing no more than 50% of the bank protection work using impervious hardscape designs.

The general design criteria and cross-section for each of the bank protection methods used by the District are included in this appendix ~~Appendix A~~. In addition to those criteria, design of a particular bank protection project includes evaluation of other site specific characteristics, such as location (for example, the inside of or outside of a curve), soil type, shear stress, features of the channel adjacent to the site and available right of way. Figure E-1 is a flow diagram of the bank protection alternatives selection process.

3.0 CLASSIFICATION OF RESOURCES, TECHNIQUES, IMPACTS, AND REVEGETATION POTENTIAL

This programmatic impact assessment and the accompanying mitigation rely on several simple classifications of the biological species, ~~and~~ stream functions and biotic resources impacted, the bank protection techniques utilized, and the potential for site revegetation. Obviously conditions vary widely from stream to stream and even over short distances within a stream. The intent in these classifications is to represent the typical conditions and to allow site assessment to verify the actual conditions and the suitability of the measures to be applied.

3.1 Species

As described in the Environmental Setting section, healthy riparian habitat is critical to maintaining biological diversity in areas such as Santa Clara County, where upland habitat has been intensively modified for agricultural and urban uses. Biological species potentially impacted include strictly aquatic species, such as fish, strictly terrestrial (upland) species, such as songbirds, and numerous species that move between the aquatic and adjacent upland habitat, such as frogs. Qualitatively, the aquatic species of greatest concern is the federally listed steelhead. Other aquatic species of concern include land-locked rainbow trout, chinook salmon, and other native fish. The terrestrial species of particular concern include birds, especially neotropical migrants and raptors. Impacts to the semi-aquatic reptiles and amphibians, such as California red-legged frogs and western pond turtles, are of potential concern in both aquatic and terrestrial habitat.

3.2 Stream Functions

Stream functions potentially affected by bank protection are classified as either in-stream functions primarily affecting the aquatic environment or stream side functions primarily affecting the riparian environment, but also affecting the aquatic environment. Note that other in-stream functions generally not impacted by bank protection, such as steelhead spawning habitat, are also addressed in the DEIR. For in-stream functions, conditions beneficial for native fish are of paramount importance. The following discussion oversimplifies the aquatic species habitat relationship, but is a reasonable guide for application of programmatic mitigation.

3.2.1 In-stream

In-stream functions provided in or immediately adjacent to the normal flow channel directly serve aquatic and semi-aquatic species. For the programmatic mitigation, the channel is defined to be the area below Ordinary High Water. Functions include:

1. In stream Escape Cover: provided by undercut banks, large boulders, tree roots, downed trees, and other structural elements (including deteriorating bank protection projects)
2. Hydraulic Complexity: resulting from the interaction of current with the same structural elements providing instream escape cover
3. Velocity Refuge: also provided by structural elements
4. Shading and water temperature moderation: provided by mature riparian shrubs and trees
5. Overhanging escape cover: provided by shrubs and grasses near the stream edge

3.2.2 Stream-side

The stream-side environment includes the functions of riparian vegetation. This upland vegetation benefits terrestrial species, as well as semi-aquatic amphibians and reptiles and fish. Functions include:

1. Sediment stabilization: provided by riparian trees, shrubs and grasses
2. Shading and water temperature moderation: provided by mature riparian shrubs and trees
3. Overhanging escape cover: provided by shrubs and grasses near the stream edge
4. Bird breeding and foraging habitat: provided by mature native riparian species, such as cottonwoods and willows, oaks, other trees, shrubs, forbs, grasses, and the streambank itself
5. Foraging, refugia, estivation, and breeding habitat for semi-aquatic amphibian and reptile species: provided by low vegetation, rocks, downed materials, and the streambanks itself
6. Foraging, breeding, hibernacula, and dispersal habitat for mammals: provided by the riparian vegetation and the streambanks, substrate

3.3 Bank Protection Techniques

Bank protection methods are classified here by their impact on (1) in-stream habitat and (2) stream-side habitat. For each habitat type, there are three categories of effects: those that (1) enhance biotic resources, (2) provide limited biotic resource, or (3) reduce or eliminate biotic potential. The Bank

Protection Impact Assessment Matrix allow evaluation of the direct and potential impacts of bank protection. This appendix includes the descriptions and drawings for approximately 30 methods of bank protection and an evaluation of the impact for in-stream and stream-side habitat. The appendix will be updated as new methods or criteria are added to the program.

~~Bank protection measures that create extensive inflexible, impervious channel banks with essentially no revegetation are termed "hard," and the product is called "hard scape." Measures that retain natural earth banks and have higher capacity to support vegetation are termed "soft," and the product is called "softscape." The methods listed here are defined and illustrated in the Appendix A.~~

~~3.3.1 Bank Protection Techniques That Tend To Limit Biotic Potential~~

~~These techniques may include but are not limited to:~~

- ~~Gabions~~
- ~~Rock blanket (includes larger rip-rap with small rock fill)~~
- ~~Sacked concrete~~
- ~~Articulated concrete mat~~
- ~~Synthetic cellular confinement~~

~~3.3.2 Bank Protection Techniques That Tend To Retain Biotic Potential~~

~~These techniques may include but are not limited to:~~

- ~~Large boulder revetment~~
- ~~Root wads and boulders~~
- ~~Log crib walls~~
- ~~Concrete crib walls~~
- ~~Organic surface matting~~

4.0 IMPACT AND MITIGATION

The District proposes to implement a bank protection program that avoids ~~potential~~ impacts to the greatest extent possible and incorporates mitigation to balance impacts that can not be avoided. The impact of bank protection depends on the ~~intensity~~ type of ~~the~~ work done and the sensitivity of the environment where the work is done. This work type/environment relationship is reflected in ~~an Impact/Mitigation~~ the Impact Assessment matrix which follows section 4.3 of this appendix for in-stream and stream-side resource functions. The matri~~ces~~x identif~~y~~ies project effects as "Neutral", "Impact", or "Benefit", and in some cases, "Not ~~in~~ covered by SMP".

Neutral. A project effect is said to be neutral when the environmental effect of a bank protection measure results in neither an adverse impact nor a significant net benefit to the existing environment.

Impact. A project effect is said to be an impact when the environmental effect of a bank protection measure results in an adverse impact to the existing environment.

Benefit. A project effect is said to be a benefit when the environmental effect of a bank protection measure results in a significant net benefit to the existing environment. This benefit can be used to offset or mitigate adverse impacts elsewhere.

Not Covered by the SMP. In some cases, the environment is judged to have a high environmental sensitivity and certain bank protection techniques would have a significant irreversible and cumulative effect that cannot be effectively mitigated by enhancing conditions elsewhere. Such projects are deemed to be outside of the scope of the routine maintenance in the SMP. Also excluded is emergency work.

4.1 In-stream Impacts

In-stream environmental quality is primarily determined by fisheries present. Other mitigation is proposed elsewhere for impacts on other protected aquatic species such as red-legged frog. ~~The primary Work Measure is lineal extent of stream channel.~~ Most District streams have been categorized by fisheries present.

High ~~Quality~~ Sensitivity *Fisheries*. Cold water fishery with trout or steelhead, warm water fishery with trout potential (DEIR fish habitat categories 5, 6, and 7).

Medium ~~Quality~~ Sensitivity *Fisheries*. Warm water native fishery, salmon present (DEIR fish habitat categories 3 and 4) or any reach used for steelhead migration.

Low ~~Quality~~ Sensitivity *Fisheries*. Warm water fishery, mostly introduced species, fish limited or no value (DEIR fish habitat categories ~~1, 2 and 8~~ 0,1 and 2), but only where the reach is not used for steelhead migration).

~~In-stream Impact and Mitigation Matrix~~

~~Environmental Sensitivity~~		**~~Bank Protection Techniques Effect~~**	
~~Fisheries Present on Reach~~	**~~In-Stream Functions~~**	**~~Methods That Tend to Retain Biotic Potential (e.g., Large Boulder Revetment, Crib Walls)~~**	**~~Methods that Tend to Limit Biotic Potential (e.g., Small Rock Rip-Rap, Gabions, Sacked Concrete)~~**
~~High Quality~~	~~Present~~	~~Neutral~~	~~Not Covered by SMP~~
	~~Absent~~	~~Benefit~~	~~Not Covered by SMP~~
~~Medium Quality~~	~~Present~~	~~Neutral~~	~~Impact~~
	~~Absent~~	~~Benefit~~	~~Neutral~~
~~Low Quality~~	~~Present~~	~~Neutral~~	~~Neutral~~
	~~Absent~~	~~Benefit~~	~~Neutral~~

~~*Work Measure is lineal extent of stream channel.*~~
~~*Impact – Net adverse impact; must be mitigated 1:1.*~~
~~*Neutral – No effect; no mitigation required.*~~
~~*Benefit – Net improvement; provides mitigation credit 1:1.*~~

4.2 Stream-side Impacts

Simply, the impact of bank protection on stream-side functions can be evaluated based upon the quality of the riparian habitat impacted and the potential for the site to be revegetated, based on the bank protection work being done. Although the primary Work Measure is lineal extent of stream channel (lineal feet), riparian value will also need to take into account the area affected (square feet) and the number of stems for large vegetation. See BMP 2.8, Replace Trees. ~~Because area at each site is limited, direct (1:1) revegetation is sufficient (i.e., for 100 linear feet of impact, 100 linear feet of revegetation a minimum of 6 feet wide), but Large trees lost will need to be replaced at a higher ratio, such as 3:1 for all stems over 6 inch diameter at breast height (DBH), and 4:1 for trees greater than 18 inches DBH to account for mortality and the smaller size of replacement trees. Protocol for revegetation is currently being developed which includes location of revegetation sites, planting guidelines, maintenance and monitoring and reporting of the sites.~~

4.2.1 Riparian Habitat Quality

The riparian quality can be classified as:

High Quality Riparian Habitat. Sites with native overstory with continuous understory or occurring in dense thickets; dense native overstory with sparse, non-native or no understory; and native willow thickets. Site may provide overhanging escape cover and shading.

~~Moderate~~ Medium Quality Riparian Habitat. Sites with sparse native overstory with sparse, non-native or no understory; non-native overstory with native understory; and dense nonnative overstory with sparse, non-native or no understory. Site may provide some overhanging escape cover and shading.

Low Quality Riparian Habitat. Sites with no or only sparse non-native overstory with sparse, non-native, or no understory. Site may provide some overhanging escape cover for fish.

4.2.2 Riparian Restoration Potential

Ideally, all bank protection projects would be revegetated to restore full natural potential values. There are practical limitations, however. First, creeks are often in a highly disturbed state with much of the natural system already absent. Second, the need to stabilize over-steepened banks or to withstand very high water velocities may preclude reliance on revegetation alone for bank protection. Third, the banks may be so steep and incised that they do not provide space for riparian vegetation. Fourth, the engineered bank itself may involve impervious surface or such heavily compacted earth that some normal stream side vegetation cannot become established and thrive. Rather than specify impact according to the type of bank protection technique, stream-side impacts are characterized by the potential for restoration, taking in to account the technique and the site limitations.

High Riparian Restoration Potential. Sites where dense native overstory and dense native understory, including willow thickets where appropriate, can be readily established. Overhanging escape cover and shading can be incorporated.

Moderate Riparian Restoration Potential. Sites where sparse native overstory with moderate to dense native understory can be established. Overhanging escape cover and shading may potentially be incorporated.

Low Riparian Restoration Potential. Sites where no or only sparse native overstory and no or only sparse native understory can be established.

~~Stream-side Impact and Mitigation Matrix~~

~~Existing Riparian Habitat Quality~~	**~~Bank Protection Project Restoration Potential~~**		
	~~High Potential~~	**~~Medium Potential~~**	**~~Low Potential~~**
~~High Quality~~	~~Neutral~~	~~Impact~~	~~Not Covered by SMP~~
~~Medium Quality~~	~~Benefit~~	~~Neutral~~	~~Impact~~
~~Low Quality~~	~~Benefit~~	~~Benefit~~	~~Neutral~~

~~Work Measure is lineal extent of stream channel, also taking into account total area affected and number of tree stems removed.~~
~~Impact = Net adverse impact; must be mitigated 1:1 in linear feet, a minimum of 6 feet wide; 3:1 in tree stems over 6 inch DBH.~~
~~Neutral = No effect, no mitigation required. Overhanging escape cover and/or shading must be incorporated if present in pre project conditions.~~
~~Benefit = Net improvement; provides mitigation credit 1:1 in linear feet, a minimum of 6feet wide. Overhanging escape cover and/or shading must be incorporated if present in pre project conditions.~~

4.3 Mitigation for Bank Protection

Using the bank protection impact assessment matrix to evaluate the environmental impact of bank protection, the District proposes a mitigation ratio of 1:1 by area for impacts or credit according to the assessment in the matrix. In-stream and stream-side impacts are evaluated separately and mitigation or credit are applied to each category. To further reduce the adverse effects of bank protection, the District will mitigate for all impacts for impervious hardscape and for unvegetated rock bank protection at a ratio of 3:1 and for all vegetated rock at a ratio of 1:1 regardless of the determination of the impact assessment matrix. This will account for all direct, potential and cumulative impacts from the bank protection program. All impacts and credits will be measured by area and the ongoing totals will be reported in the annual report. Mitigation for both in-stream and stream-side impacts will consist of revegetation consistent with the Protocol for Revegetation Associated with Use of Impervious Materials for Bank Protection in this appendix.

SANTA CLARA VALLEY WATER DISTRICT
STREAM MAINTENANCE PROGRAM

PROTOCOL FOR REVEGETATION ASSOCIATED WITH BANK PROTECTION

This version of the Protocol for Revegetation Associated with Bank Protection completely replaces the version formerly occurring in the March 2001 version of the draft SMP.

Introduction

The purpose of this document is to provide a protocol for developing the revegetation element used in bank protection.

This revegetation protocol contains the following components:
- Location of Plantings
- Plant Selection Criteria
- Planting Techniques
- Establishment Maintenance
- Monitoring/Reporting

This protocol provides the criteria and techniques used in the revegetation element of certain bank protection projects. The methods for revegetation are similar whether the material is being installed on site to reduce environmental impacts or is being installed off site as mitigation for impacts.

Location of Plantings

For overall watershed integrity, it is most desirable to plant at the site of the actual impacts. The site will be evaluated, pre and post project, for ecological and horticultural viability to assure that it can successfully support riparian vegetation. Adjacent areas will be surveyed to determine what types of vegetation a particular creek supports and what limitations may exist for plant establishment.

Vegetation will be planted as near the low flow channel as possible to provide maximum environmental benefit. On repairs where vegetated rock or wood is designed at the toe of the slope, the vegetation will be planted just above the structure. Where design criteria permits, space is available and the hydrology is appropriate, cuttings or small container plantings will be installed into the structure.

For a site to be suitable, it must have ecological, hydraulic, and geomorphic characteristics that give a high degree of certainty for successful revegetation. Design elements that will allow planting will be incorporated into the bank repair if there are not engineering constraints.

In some instances, planting at the actual repair site may not be practical or sustainable. Those situations are referred to in portions of the bank stabilization section of this document. When an alternative site must be selected, it will be selected using the following criteria in descending order of desirability:

1. Immediately upstream or downstream of the impact site.

2. On the same creek as the impact site.
3. In the same watershed as the impact site.
4. In an adjacent watershed to the impact site.
5. In another riparian area in the same part of the county.
6. Within the county.

Once an appropriate location has been selected, all other planting guidelines will apply to the site.

Plant Selection Criteria

The criteria for plant selection will be developed based on surveys of natural areas on the same creek that have a similar ecological setting. These "reference sites" will provide information as to what species would be found in the area and an approximate population density. These areas may also provide propagation materials for the repair site. The stream reaches in valley floor of Santa Clara County have a fairly narrow palette of plant species but reference sites will allow further refinement of the project design to improve the potential for success.

If the District is unable to find appropriate reference sites on the same stream, other areas in the county that have similar ecological conditions will be used as a design reference.

Planting Techniques

Planting techniques for bank stabilization projects will use standard revegetation methods. The following general guidelines will be incorporated into these projects:

- Container stock, seed, or vegetative cuttings will be installed using hand tools or mechanical augers.
- Planting will be done using spacing and a species mix designed to mimic a natural system.
- Designs will incorporate both trees and shrubs to provide habitat complexity.
- While an area may be slightly over-planted to allow for some mortality, densities will not be increased substantially.
- Trees will be planted at an average 12-15' on center and shrubs will be planted at average 6-8' on center.
- Plants will be installed throughout the repair site where conditions allow. Impediments would be soil conditions, impervious substrate, channel capacity issues, and maintenance access.
- Plants will be installed as close to the water as possible. Plantings will not be installed solely at the top of bank.
- Plant material will be from local stock and, when possible, watershed-specific.
- Planting will be done in Fall or early Winter to take advantage of seasonal rainfall to aid establishment.
- Bank stabilization sites will not have an irrigation system per se, but infrastructure to facilitate establishment irrigation will be designed into the project. This could take the form of basins for hand watering, Dri-Water, or other similar measures.

Establishment Maintenance

Revegetation on bank stabilization project will have an establishment maintenance period of a minimum of two years. Limited maintenance will continue after the initial two years if project needs warrant these activities. Maintenance will consist of supplemental watering, weed control, rodent control, protection from vandalism, and regular inspections. Replanting will only be done if significant numbers of plants die or are damaged by flows during the establishment maintenance period. The goal of the planting is to get adequate habitat established at each project site.

Monitoring/Reporting

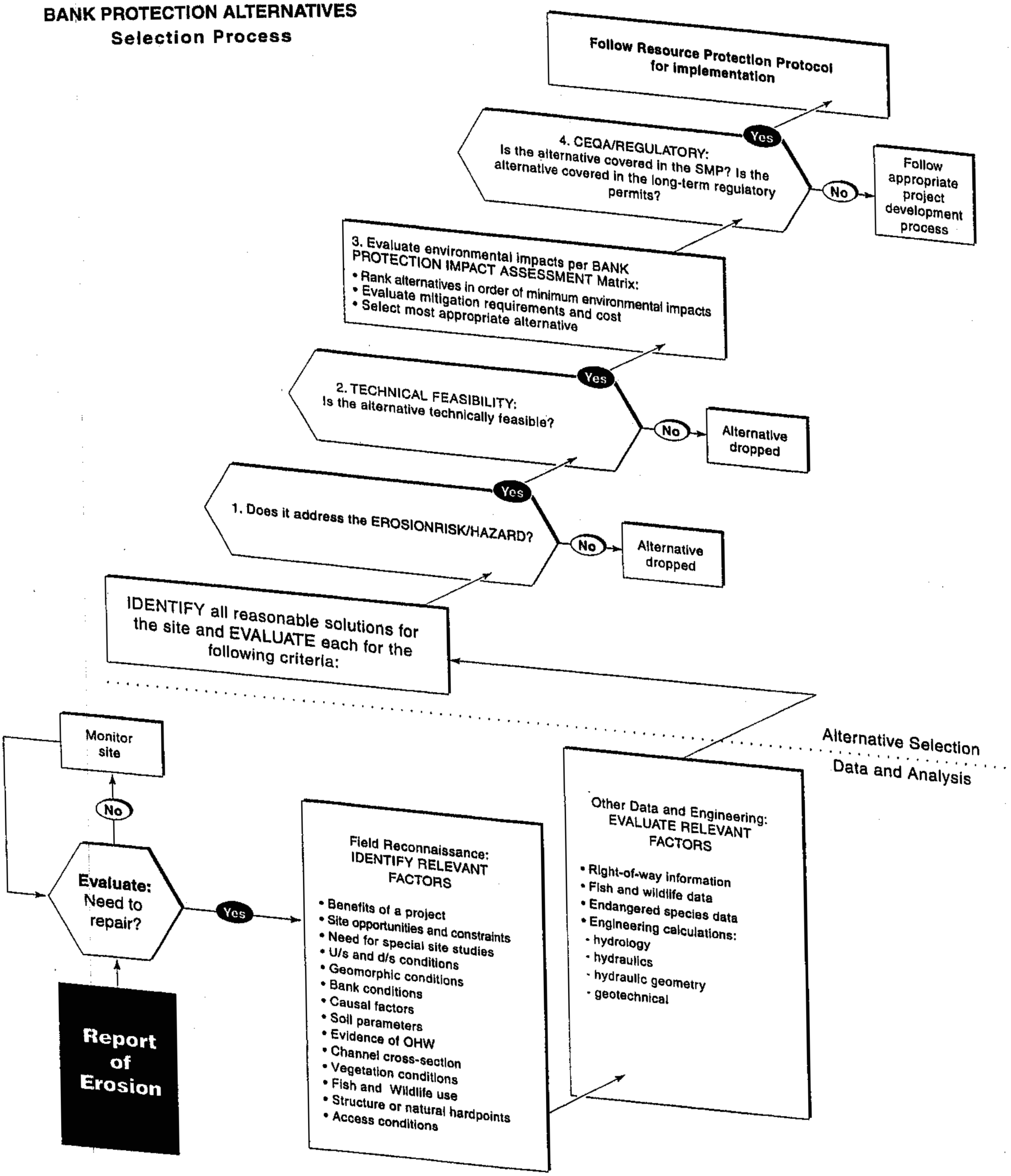
Monitoring for bank stabilization planting projects will consist of regular inspections of all planted sites that are under maintenance. The results of these inspections will be consolidated into a narrative report and included as a section in the annual work report.

Work areas and mitigation efforts will be tracked on an annual basis and reported to the agencies.

For the first five years, the District will provide the agencies with a tour after completion of the work season of representative work areas (especially those along target streams) for that year and all mitigation sites. Pre-construction photographs will be provided.

Figure E-1

BANK PROTECTION ALTERNATIVES
Selection Process


Follow Resource Protection Protocol for implementation
Yes
4. CEQA/REGULATORY: Is the alternative covered in the SMP? Is the alternative covered in the long-term regulatory permits?
No
Follow appropriate project development process
3. Evaluate environmental impacts per BANK PROTECTION IMPACT ASSESSMENT Matrix:
• Rank alternatives in order of minimum environmental impacts
• Evaluate mitigation requirements and cost
• Select most appropriate alternative
Yes
2. TECHNICAL FEASIBILITY: Is the alternative technically feasible?
No
Alternative dropped
Yes
1. Does it address the EROSIONRISK/HAZARD?
No
Alternative dropped
IDENTIFY all reasonable solutions for the site and EVALUATE each for the following criteria:
Alternative Selection
Data and Analysis
Monitor site
No
Evaluate: Need to repair?
Yes
Report of Erosion
Field Reconnaissance: IDENTIFY RELEVANT FACTORS
• Benefits of a project
• Site opportunities and constraints
• Need for special site studies
• U/s and d/s conditions
• Geomorphic conditions
• Bank conditions
• Causal factors
• Soil parameters
• Evidence of OHW
• Channel cross-section
• Vegetation conditions
• Fish and Wildlife use
• Structure or natural hardpoints
• Access conditions
Other Data and Engineering: EVALUATE RELEVANT FACTORS
• Right-of-way information
• Fish and wildlife data
• Endangered species data
• Engineering calculations:
- hydrology
- hydraulics
- hydraulic geometry
- geotechnical

Bank Protection Impact Assessment Matrix

In-stream Habitat					Steam-side Habitat				
Existing In-stream Habitat Quality		Effect of Bank Protection Method[1]			Existing Riparian Habitat Quality		Effect of Bank Protection Method[1]		
Fisheries Present on Reach[2]	In-stream Functions at Repair Site[3]	Enhance Biotic Resources	Provide Limited Biotic Resources	Reduce or Eliminate Biotic Potential	Reach[4,5]	Repair Site[5]	Enhance Biotic Resources	Provide Limited Biotic Resources	Reduce or Eliminate Biotic Resources
High Sensitivity	Present	Neutral	Impact	Not covered by SMP	High Quality	High	Neutral	Impact	Not covered by SMP
	Absent	Benefit	Neutral	Not covered by SMP		Medium or Low	Benefit	Neutral	Not covered by SMP
Medium Sensitivity	Present	Neutral	Impact	Impact	Medium Quality	High or Medium	Neutral	Neutral	Impact
	Absent	Benefit	Neutral	Impact		Low	Benefit	Benefit	Impact
Low Sensitivity	Present	Neutral	Neutral	Impact	Low Quality	High or Medium	Neutral	Neutral	Impact
	Absent	Neutral	Neutral	Neutral		Low	Neutral	Neutral	Neutral
Classification of Bank Protection Measures		2, 2A, 3, 3A, 4, 4A, 5A, 6, 8B, 8C, 12, 12A	1, 5, 7A, 8A, 9, 9A, 9B, 10B, 11A	7, 8, 10, 10A, 11, 13, 13A, 14	**Classification of Bank Protection Measures**		2, 2A, 3, 3A, 4, 4A, 5A, 6, 12, 12A	1, 5, 8A, 8B, 8C, 10A, 10B	7, 7A, 8, 9, 9A, 9B, 10, 11, 11A, 13, 13A, 14

---

[1] See Stream Maintenance Program, Appendix E, Section 4.0 for description of effects of bank protection method.

[2] See Stream Maintenance Program, Appendix E, Section 4.1 for description of fisheries sensitivity and EIR, Figure IV-B-1, Fisheries Present in Streams within the jurisdiction of the Santa Clara Valley Water District

[3] See Stream Maintenance Program, Appendix E, Section 3.2.1. In-stream functions for aquatic and sem-aquatic species include in-stream escape cover, hydraulic complexity, velocity refuge, shading and water temperature moderation, coarse particulate organic matter and overhanging escape cover.

[4] Within 1,000 feet of repair site.

[5] See Stream Maintenance Program, Appendix E, Section 4.2.1 for the description of Riparian Habitat Quality.

BANK PROTECTION MEASURES

#1	Earth Repair
#2	Live Construction
#2A	Live Construction with Boulder Toe Protection
#3	Contour Wattling
#3A	Contour Wattling with Boulder Toe Protection
#4	Brush Mattress (Brush Layering)
#4A	Brush Mattress (Brush Layering) with Boulder Toe Protection
#5	Surface Matting (Erosion Mats)
#5A	Surface Matting (Erosion Mats) with Boulder Toe Protection
#6	Root Wads and Boulders
#7	Cellular Confinement System
#7A	Cellular Confinement System with Vortex Weirs
#8	Rock Blanket
#8A	Boulder Rip-Rap
#8B	Boulder Rip-Rap with Soil and Revegetation
#8C	Boulder Rip-Rap, with Soil and Revegetation and Vortex Weir
#9	Stepped Gabions
#9A	Stepped Gabions with Planted Area
#9B	Stepped Gabions with Planted Area and Vortex Rock Weirs

BANK PROTECTION MEASURES

#10	Concrete Blocks Bio-technical Slope Protection: Articulated
#10A	Articulated Concrete Blocks with Planted Areas
#10B	Articulated Concrete Blocks with Planting Areas and Vortex Rock Weirs
#11	Concrete Crib Walls
#11A	Concrete Crib Walls with Vortex Rock Weirs
#12	Live Log Crib Walls
#12A	Live Log Crib Walls with Vortex Rock Weirs
#13	Sacked Concrete
#13A	Sacked Concrete with Vortex Rock Weirs
#14	Gunite Slope Protection

Bank Protection Measures

#1: Earth Repair

Description:

Earth repair involves the replacement and repair of eroded channel banks using compacted soil. The eroded slope is scarified and readied for fill placement. A key is cut into the bank. Fill is placed and compacted to 90% in 8-inch lifts. The new slope is trimmed to a 2:1 slope. The surface is seeded with fast sprouting grass species like rye.

The fill material needs to be appropriate to this purpose. There should be no deleterious or organic material or other debris contained in the fill. The Atterberg Plasticity Index of the material should be between 15 and 25, with the Liquid Limit no higher than 40. The material must contain at least 20 percent clay (by weight) passing U.S. standard sieve number 200. The fill must be placed in 8-inch or less lifts and at a minimum relative compaction of 90%.

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter.

Appropriate for local stream velocities of 6 feet per second or less.

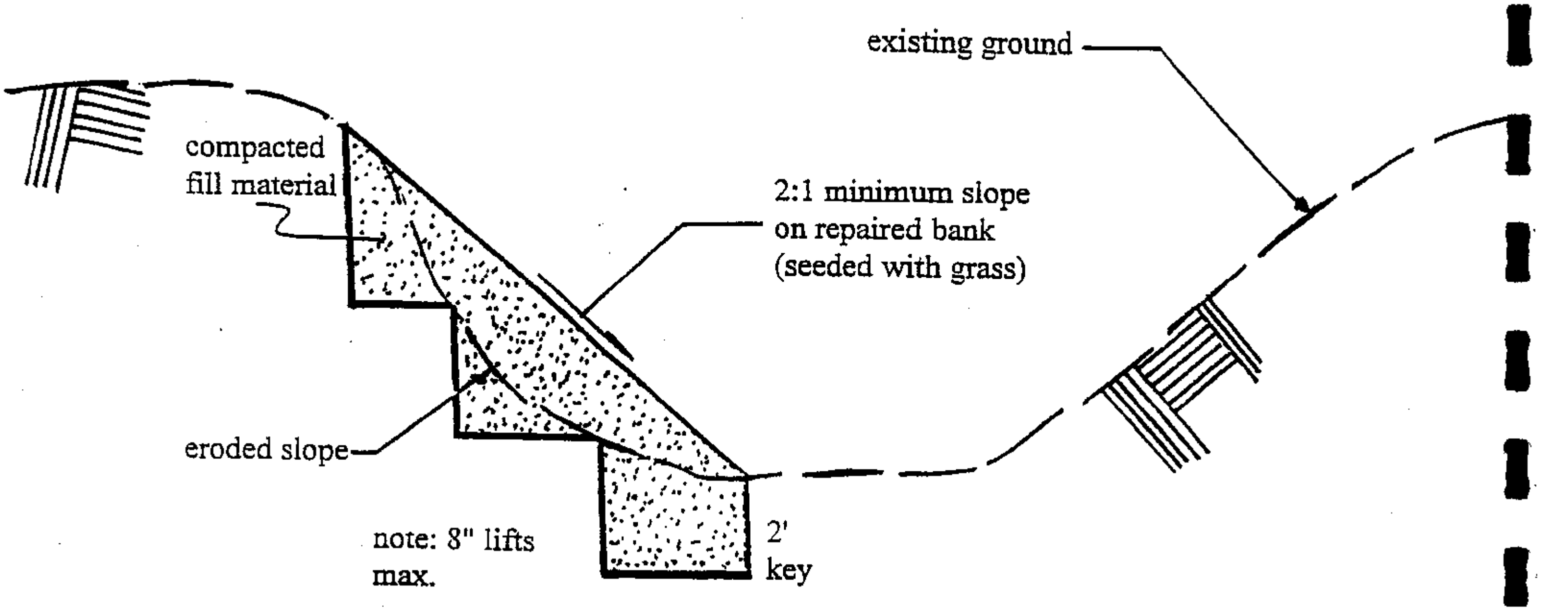
Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Provides limited biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#1: Earth Repair



Section

Bank Protection Measures

#2: Live Construction

Description:

Live construction consists of traditional methods of grading stable slopes and planting live grasses and other plants to control erosion. Vegetation planting methods commonly used include cuttings, transplants, live staking, and direct seeding (including hydro-seeding). Plants are chosen on the basis of drought tolerance and erosion control effectiveness. Biodegradable erosion control materials would be used where necessary in conjunction with live construction to assist in plant establishment.

Excellent revegetation potential. Most successful on streambanks where moderate erosion and channel migration are anticipated. Bank slope, eroding velocity, and reinforcement at the toe of the bank are limiting factors. Enhances conditions for colonization of native species. Streambank soil materials, probable groundwater fluctuation, and bank loading conditions are factors for determining appropriate design[1].

Design Criteria:

Appropriate on bank slopes of 3:1 or flatter.

Appropriate for local stream velocities of 6 feet per second or less.

Soil moisture conditions and availability of water year-around determines appropriate vegetation species (see planting palette).

Habitat Impact Assessment:

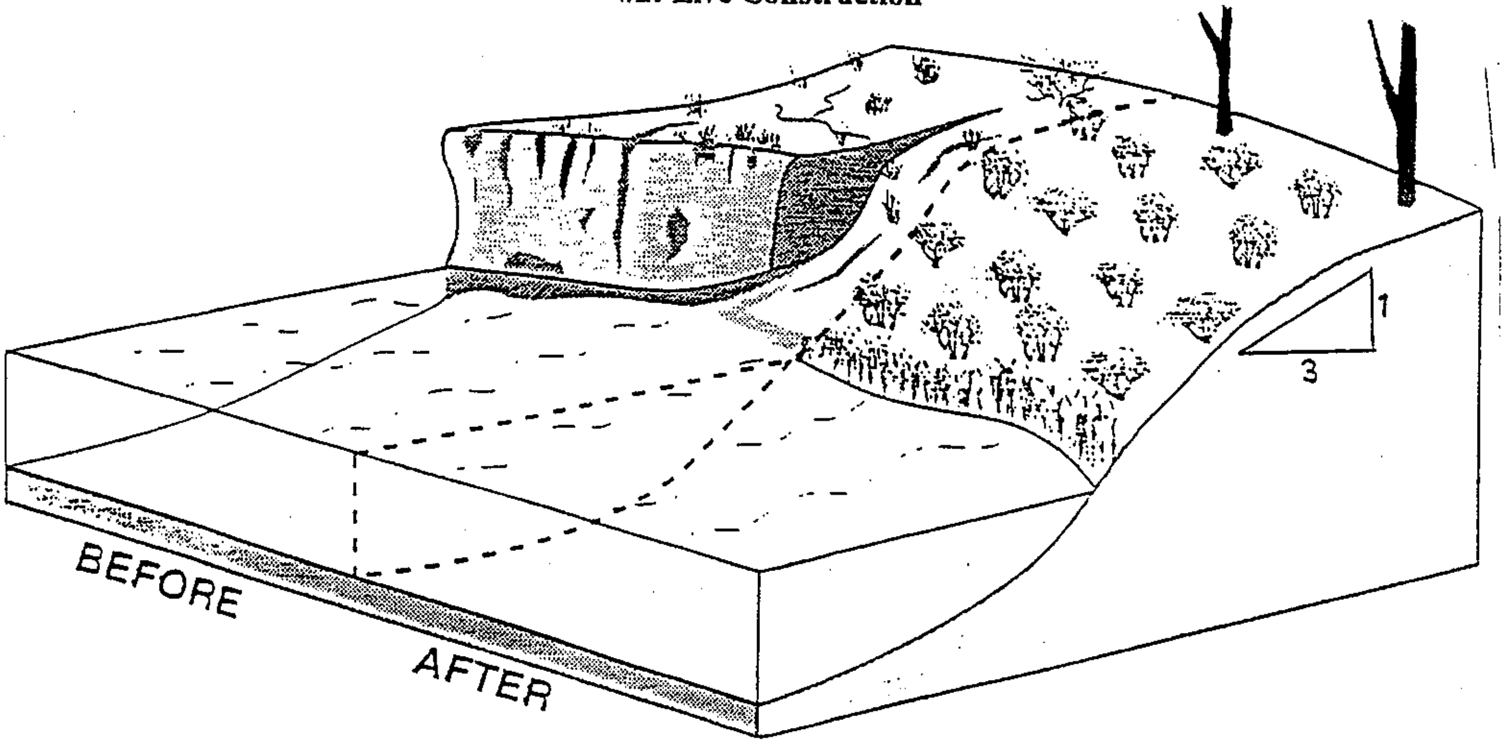
In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

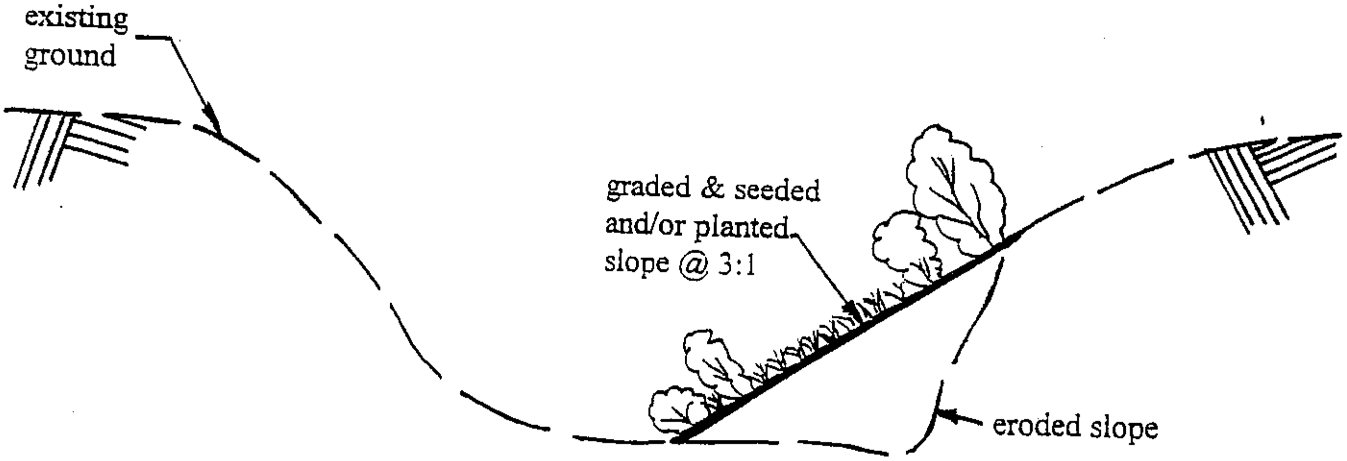
[1] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#2: Live Construction



Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices



Section

Bank Protection Measures

#2A: Live Construction with Boulder Toe Protection

Description:

Live construction consists of traditional methods of grading a flatter slope and planting live grasses and other plants to control erosion. Vegetation planting methods commonly used include cuttings, transplants, live staking, and direct seeding (including hydro-seeding). Plants are chosen on the basis of drought tolerance and erosion control effectiveness. Biodegradable erosion control materials are used where necessary in conjunction with live construction to assist in plant establishment.

Boulders (24" to 5 ton) are placed at the toe of the rebuilt bank up to the ordinary high water elevation. Voids in between the boulders can be planted using live stakes[1].

Excellent revegetation potential. Enhances conditions for colonization of native species. Streambank soil materials, probable groundwater fluctuation, and bank loading conditions are factors for determining appropriate design[1].

Design Criteria:

Appropriate on bank slopes of 3:1 or flatter for live construction section, 1.5:1 or flatter for boulder section.

Boulders must be keyed in (min. 3 feet) at the toe of bank.

Appropriate for local stream velocities of 6 feet per second or less.

Soil moisture conditions and availability of water year-around determines appropriate vegetation species (See plant palette).

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

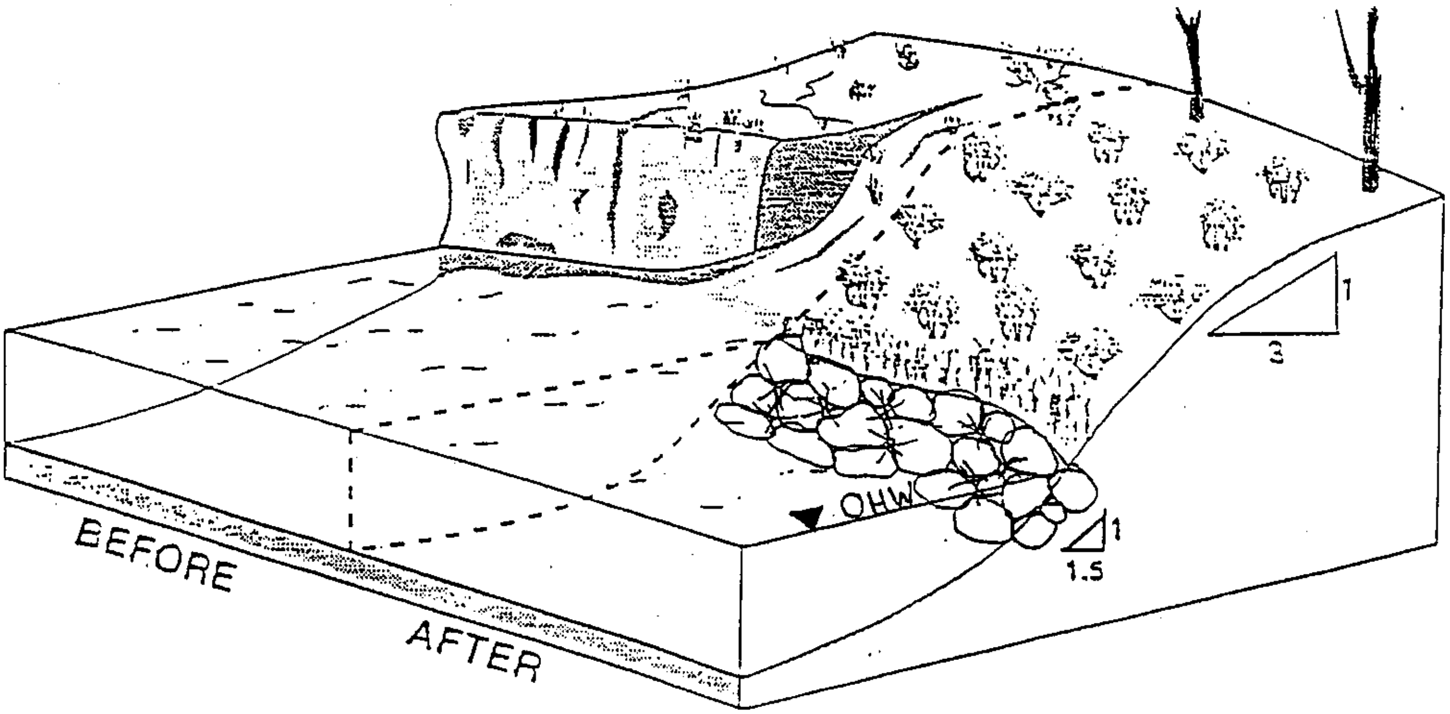
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

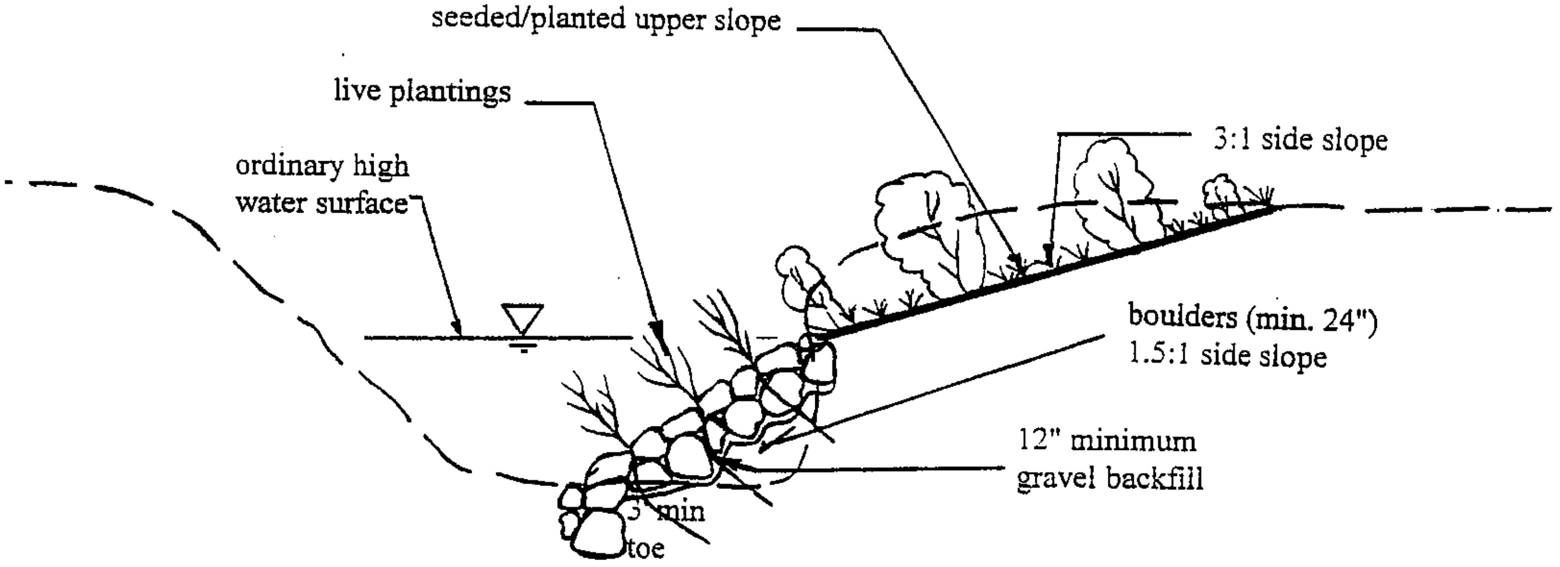
[1] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles. Processes and Practices

Bank Protection Measures

#2A: Live Construction with Boulder Toe Protection



Source: Adapted from Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices


seeded/planted upper slope
live plantings
3:1 side slope
ordinary high water surface
boulders (min. 24")
1.5:1 side slope
12" minimum gravel backfill
3 min toe

Section View

Bank Protection Measures

#3: Contour Wattling

Description:

This method consists of tying long bundles of plant stems (typically willows or cottonwood) together with twine and anchoring them in shallow trenches with wooden stakes. When the stems develop root systems and mature, the plants establish structural soil stabilization properties. This technique is generally used to manage surface erosion.

Excellent revegetation potential. The long bundles trap and hold soil on banks by creating small, dam-like structures, effectively cutting the slope length into a series of shorter slope lengths. This method enhances the conditions for colonization by native species and should, where appropriate, be used with other soil bioengineering systems and live plantings. Reinforcement at the toe of bank may be a limiting factor (see BPM #3A). Not appropriate for treatment of slopes actively undergoing mass earth movement[1].

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter.

Appropriate for local stream velocities of 6 feet per second or less.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

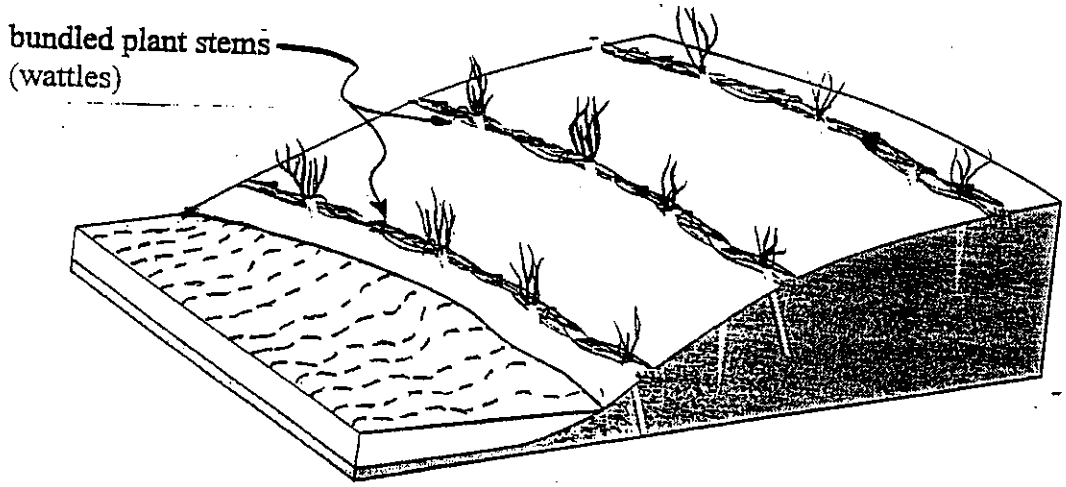
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

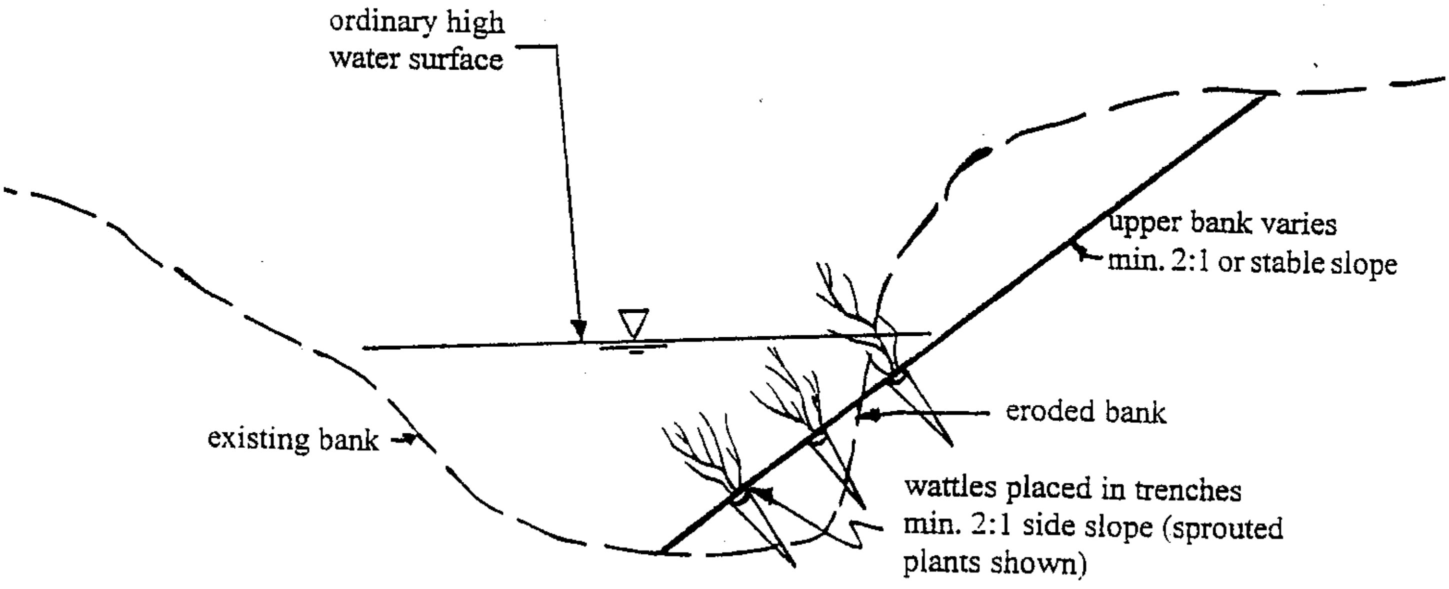
[1] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices

Bank Protection Measures

#3: Contour Wattling



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices



Section

Bank Protection Measures

#3A: Contour Wattling with Boulder Toe Protection

Description:

This method consists of tying long bundles of plant stems together with twine and anchoring them in shallow trenches with wooden stakes. When the stems develop root systems and mature, the plants establish structural soil stabilization properties.

Boulders (24" to 5 ton) are placed at the toe of the rebuilt bank up to the ordinary high water elevation. Voids in between the boulders can be planted using live stakes[1].

Excellent revegetation potential. The long bundles trap and hold soil on banks by creating small, dam-like structures, effectively cutting the slope length into a series of shorter slope lengths. This method enhances the conditions for colonization by native species and should, where appropriate, be used with other soil bioengineering systems and live plantings. Not appropriate for treatment of slopes actively undergoing mass earth movement[1].

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter for contour wattling section of slope, 1.5:1 or flatter for boulder section.

Boulders must be keyed in (min. 3 feet) at toe of bank.

Appropriate for local stream velocities of 6 feet per second or less.

Habitat Impact Assessment:

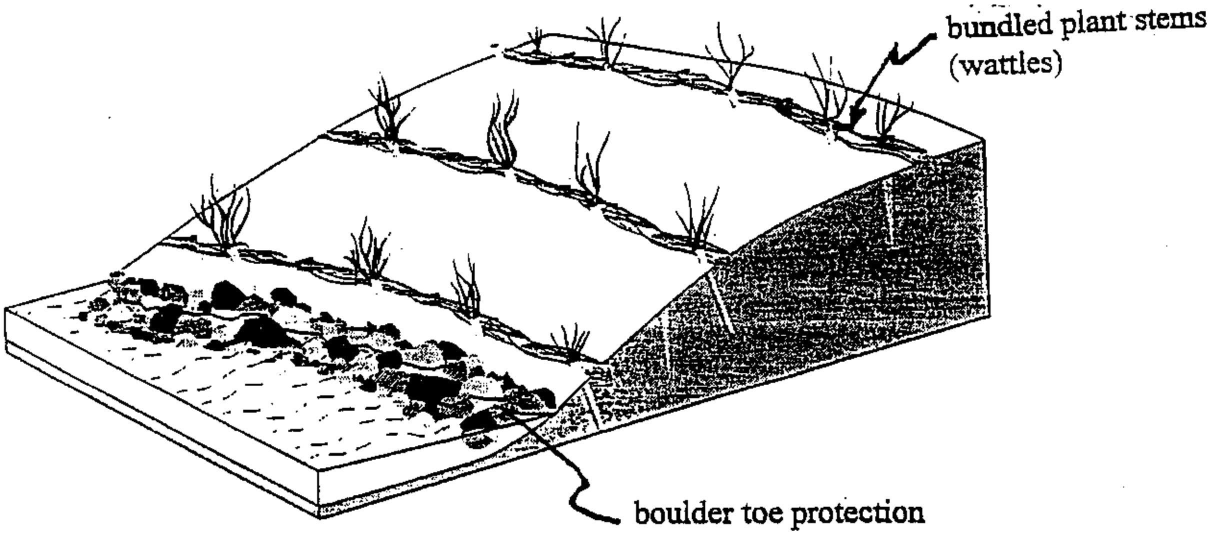
In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

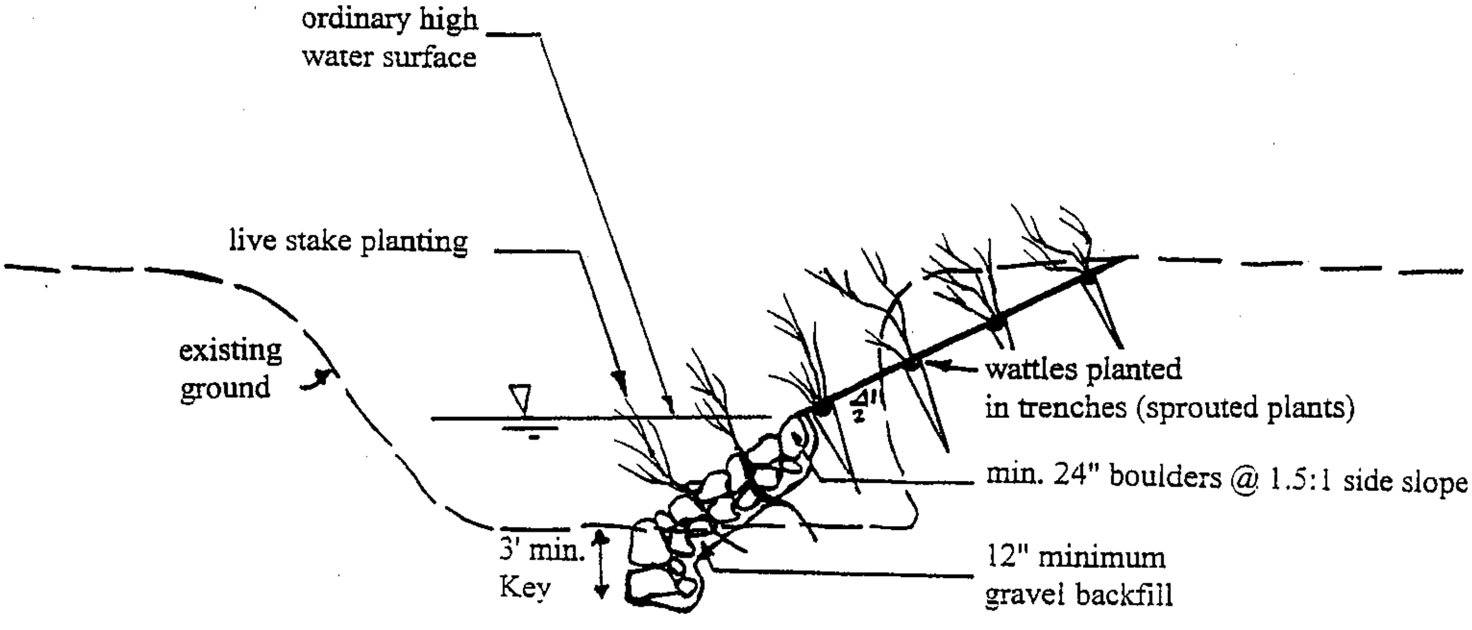
[1] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#3A: Contour Wattling with Boulder Toe Protection



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices



Section

Bank Protection Measures

#4: Brush Mattress (Brush Layering)

Description:

The eroded slope is graded and smoothed to ensure all willows are in contact with soil. A (min.) 2 foot deep trench is dug at the toe of the bank for the butt ends of the willow branches. Wood, steel, or live willow stakes are partially driven in rows on three foot centers in the area that will be covered by the mattress. After the stakes have been placed, live willow branches are put on the bank with their butt ends in the trench. Straight branches no shorter than 4 feet in length and ½" to 1" in diameter are used. If the branches are not long enough to reach the upper end of mattress, several layers may be used; however, it is necessary to "shingle" the layers by lapping each new layer over the one below by at least 18". Once the bank is covered by a thick layer of willows, cross branches are placed horizontally over the bottom layer. These branches are placed against the stakes and then tied to the stakes using wire or string. The stakes are then driven into the bank a minimum of two feet or deeper, if possible. After the completion of the mattress, the toe trench is filled with appropriately sized boulders and rocks to anchor the butt ends of the branches. The entire mattress is then covered by earth or fine stream material[1].

This method forms an immediate protective cover over the stream bank, captures sediment during flood flows, and rapidly restores riparian vegetation and streamside habitat. This measure is not appropriate where toe scour is anticipated (see BPM #4A). This method should not be used on slopes that are experiencing ongoing mass movement or other slope instability[2].

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter.

Appropriate for local stream velocities of 6 feet per second or less.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

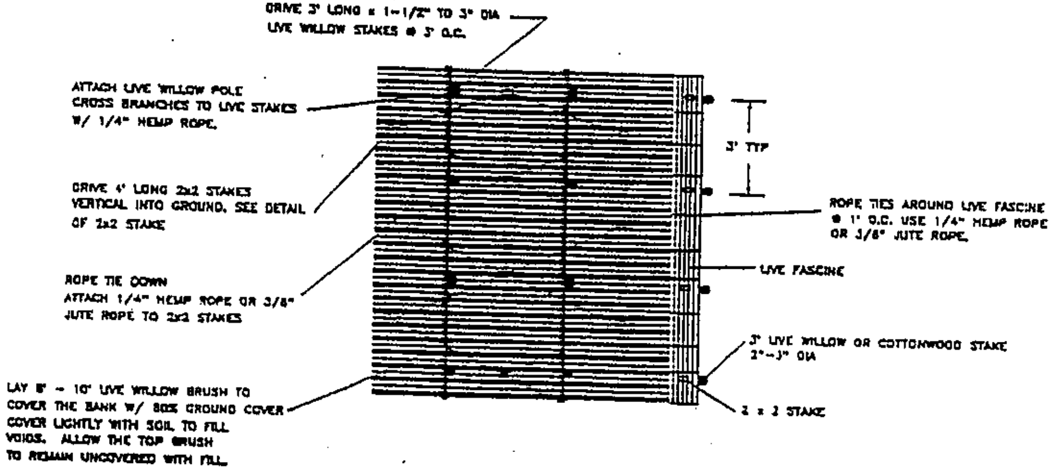
---

[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

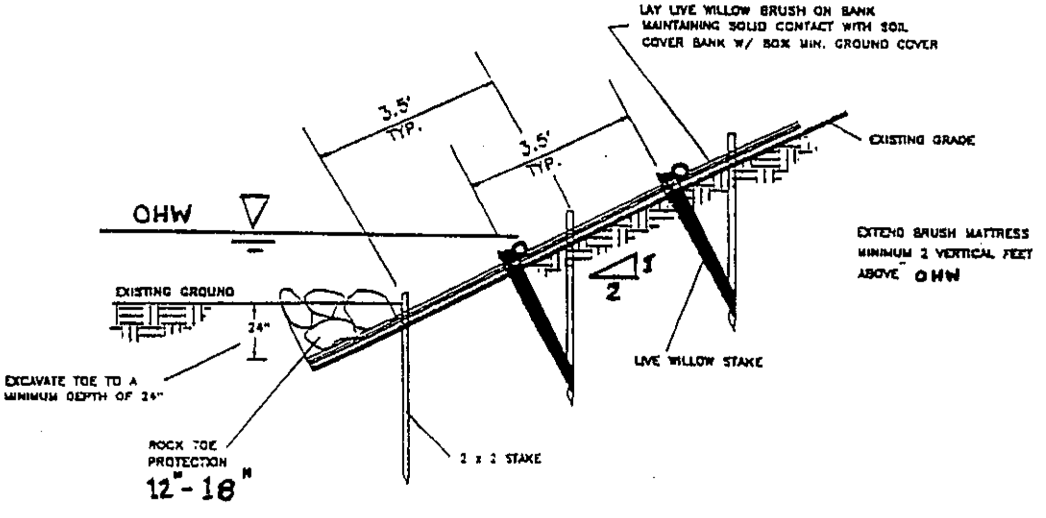
[2] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#4: Soil Bioengineering : Brush Mattress (Brush Layering)


DRIVE 3' LONG x 1-1/2" TO 3" DIA
LIVE WILLOW STAKES @ 3' O.C.
ATTACH LIVE WILLOW POLE
CROSS BRANCHES TO LIVE STAKES
W/ 1/4" HEMP ROPE.
3' TYP
DRIVE 4' LONG 2x2 STAKES
VERTICAL INTO GROUND. SEE DETAIL
OF 2x2 STAKE
ROPE TIES AROUND LIVE FASCINE
@ 1' O.C. USE 1/4" HEMP ROPE
OR 3/8" JUTE ROPE.
LIVE FASCINE
ROPE TIE DOWN
ATTACH 1/4" HEMP ROPE OR 3/8"
JUTE ROPE TO 2x2 STAKES
3' LIVE WILLOW OR COTTONWOOD STAKE
2"-3" DIA
LAY 8' - 10' LIVE WILLOW BRUSH TO
COVER THE BANK W/ 80% GROUND COVER
COVER LIGHTLY WITH SOIL TO FILL
VOIDS. ALLOW THE TOP BRUSH
TO REMAIN UNCOVERED WITH FILL
2 x 2 STAKE

Plan View



Cross Section

Source: Adapted from California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#4A: Brush Mattress (Brush Layering) with Boulder Toe Protection

Description:

The lower portion of the eroded slope (Below Ordinary High Water OHW) is graded (at a maximum of 1.5:1 slope). The upper portion of the slope is graded (at a minimum slope of 2:1) and smoothed to ensure all willows are in contact with soil. Boulders (24" to 5 ton) are placed at the toe of the rebuilt bank up to the ordinary high water elevation. Voids between the boulders can be planted using live stakes[2].

A (min.) 2 foot deep trench is dug at the top of the boulder line for the butt ends of the willow branches. Wood, steel, or live willow stakes are partially driven in rows on three foot centers in the area that will be covered by the mattress. After the stakes have been placed, live willow branches are put on the bank with their butt ends in the trench. Straight branches no shorter than 4 feet in length and ½" to 1" in diameter are used. If the branches are not long enough to reach the upper end of mattress, several layers may be used; however, it is necessary to "shingle" the layers by lapping each new layer over the one below by at least 18". Once the bank is covered by a thick layer of willows, cross branches are placed horizontally over the bottom layer. These branches are placed against the stakes and then tied to the stakes using wire or string. The stakes are then driven into the bank a minimum of two feet or deeper, if possible. After the completion of the mattress, the toe trench is back-filled with boulders and rocks to anchor the butt ends of the branches. The entire mattress is then covered by earth or fine stream material[1].

This method forms an immediate protective cover over the stream bank, captures sediment during flood flows, and rapidly restores riparian vegetation and streamside habitat. This method should not be used on slopes that are experiencing ongoing mass movement or other slope instability[2].

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter for brush mattress section of slope, 1.5:1 or flatter for the boulder section.

Boulders must be keyed in (min. 3 feet) at toe of bank.

Appropriate for local stream velocities of 6 feet per second or less.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

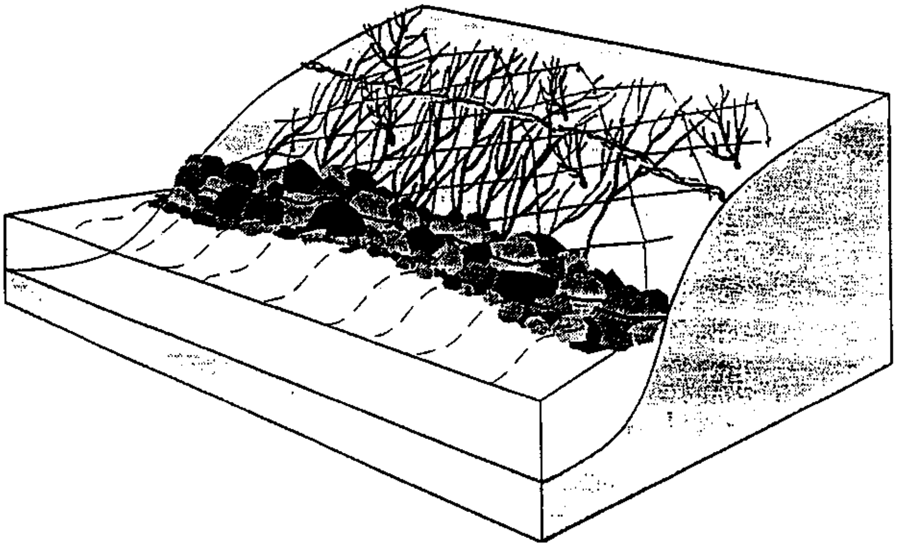
---

[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

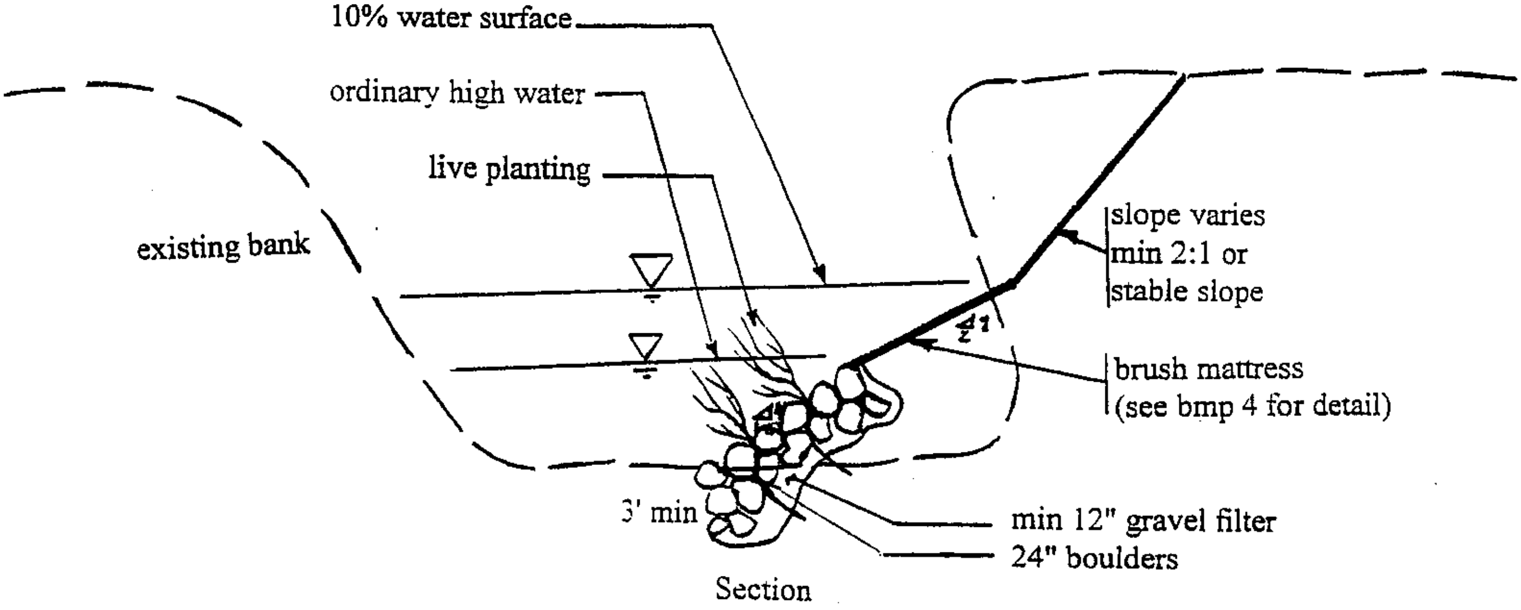
[2] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#4A: Brush Mattress (Brush Layering) with Boulder Toe Protection



Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices



Section

Bank Protection Measures

#5: Surface Matting (Erosion Mats)

Description:

This method consists of securing plastic, jute, or geotextile fabric surface liners to channel banks using stakes or staples. These materials provide soft armor protection against erosive forces and are combined with live staking and direct seeding. Abrasive sediment, debris, foot traffic, and sunlight will wear, snag, and tear these fabrics with time, potentially undermining the structure. These methods are intended to be the skeleton of a vegetated erosion control system. The establishment of vegetation is crucial to the long-term success of erosion mats.

Work best in small, uniform, improved channels with mild bank slopes. This method has good revegetation potential. Toe protection is required where toe scour is anticipated (see BPM #5A).

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter.

Typically appropriate for local stream velocities of 12 feet per second or less, depending on the type of erosion mat and revegetation method selected.

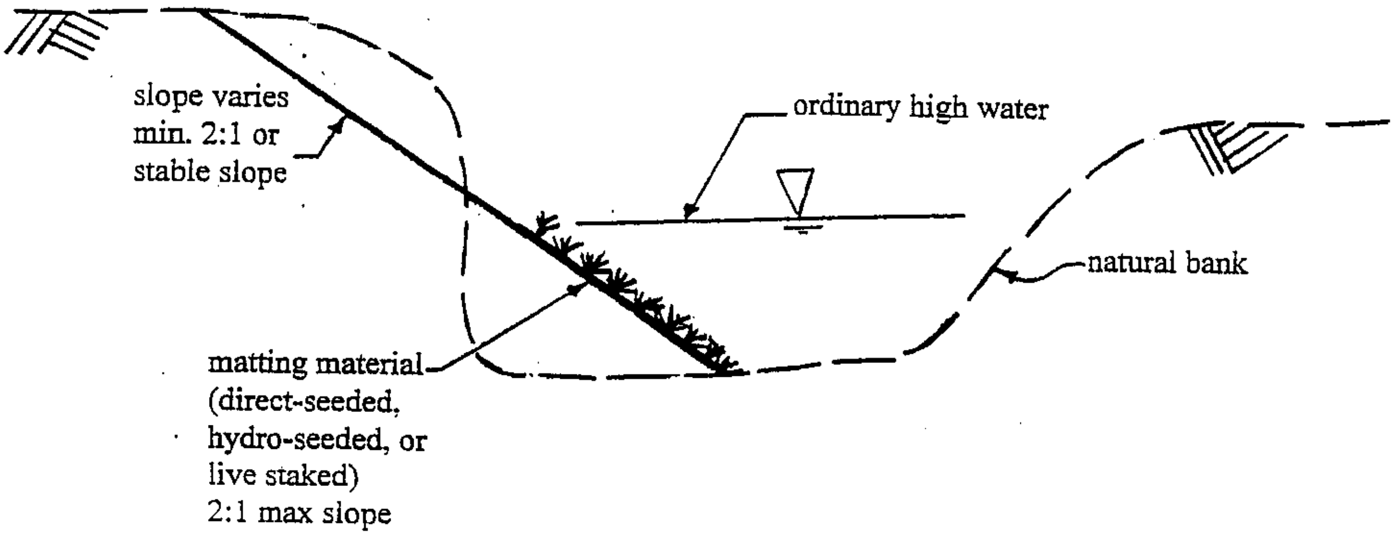
Habitat Impact Assessment:

In-stream:	Provide limited biotic resources
Stream-side:	Provide limited biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#5: Surface Matting (Erosion Mats)



Section

Bank Protection Measures

#5A: Surface Matting (Erosion Mats) with Boulder Toe Protection

Description:

The lower portion of the eroded slope (Below Ordinary High Water OHW) is graded (at a maximum of 1.5:1 slope). The upper portion of the slope is graded (at a minimum slope of 2:1) and smoothed to ensure erosion mat is in full contact with soil. Boulders (24" to 5 ton) are placed at the toe of the rebuilt bank up to the ordinary high water elevation. Voids between the boulders can be planted using live stakes

In the upper portion of the slope, plastic, jute, or geotextile fabric surface liners are attached to channel banks using stakes or staples. These materials provide soft armor protection against erosive forces and are combined with live staking and direct seeding. Debris, foot traffic, and sunlight will wear, snag, and tear these fabrics with time. The boulder toe protection will prevent undermining of the structure. These methods are intended to be the skeleton of a vegetated erosion control system.

Work best in uniform improved channels with mild bank slopes. This method has good revegetation potential.

Design Criteria:

Appropriate on bank slopes of 2:1 or flatter for erosion mat section of slope, 1.5:1 or flatter for the boulder section.

Boulders must be keyed in (min. 3 feet) at toe of bank.

Appropriate for local stream velocities of 6 feet per second or less if boulders are planted with live stakes, 12 feet per second if boulders are not planted.

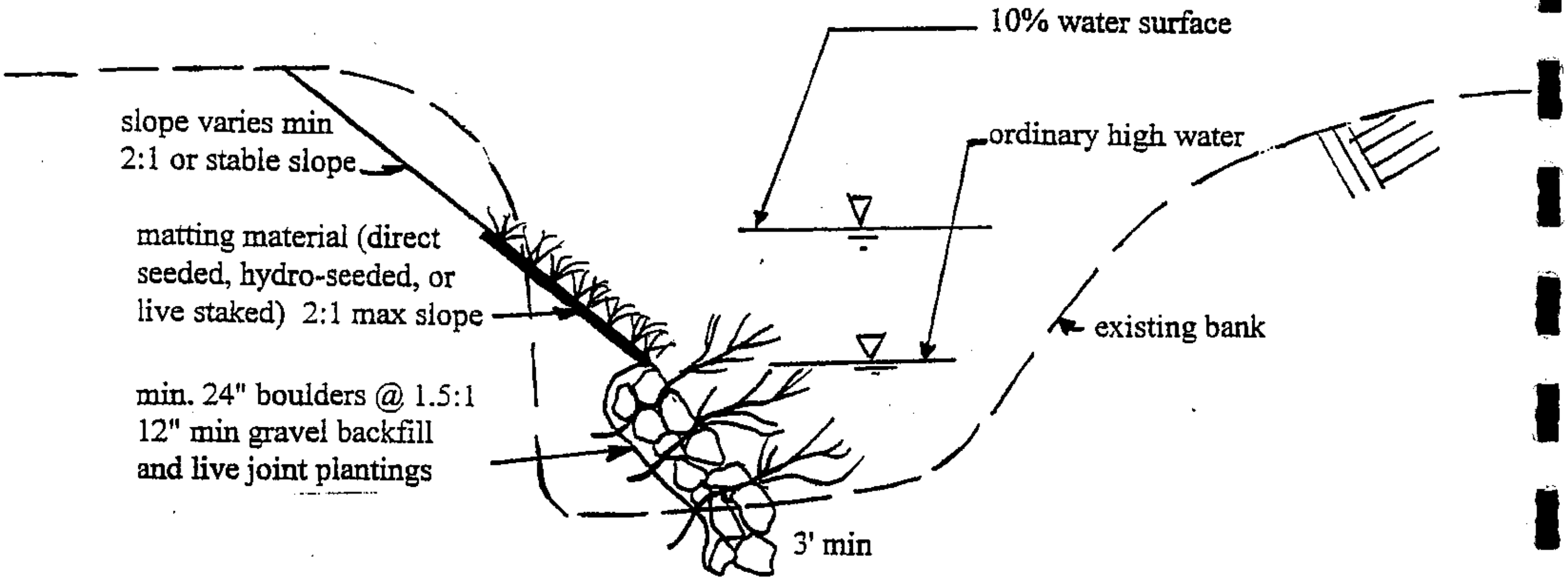
Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#5A: Surface Matting (Erosion Mats) with Boulder Toe Protection


10% water surface
slope varies min 2:1 or stable slope
ordinary high water
matting material (direct seeded, hydro-seeded, or live staked) 2:1 max slope
existing bank
min. 24" boulders @ 1.5:1 12" min gravel backfill and live joint plantings
3' min

Section

Bank Protection Measures

#6: Root Wads and Boulders

Description:

This method combines boulders, logs, and live plant material to armor a stream bank. Fish habitat is enhanced, in addition to creating a natural looking bank stabilization structure[1].

Footer logs are set in a toe trench below the thalweg line, with the channel end pointed downstream and the butt end angled 45 to 60 degrees upstream. A second log (with a root wad) is set on top of the footer log diagonally, forming an "X". The root wad end is set pointing upstream and the butt end lying downstream 45 to 60 degrees. The apex of the logs are anchored together using boulders, re-bar or cables. Large boulders are placed on top and between the logs at each apex. After all the logs and boulders are set in place, live plant material such as willows are placed within the spaces of the structure, behind the boulders. Excavated gravel and stream materials can then be placed over the bank end portion of the structure[1].

This method will tolerate high boundary shear stresses if logs and root wads are well anchored. This method should, where appropriate, be used in conjunction with soil bio-engineering or live vegetation plantings to stabilize the upper bank and ensure a regenerative source of streambank vegetation. The life of the structure depends on the species of logs used, it might need replacement if vegetative colonization does not take place. This method can create local scour (channel bottom) and erosion (opposite bank)[2].

Design Criteria:

Appropriate for channel velocities of 10 feet per second or less.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

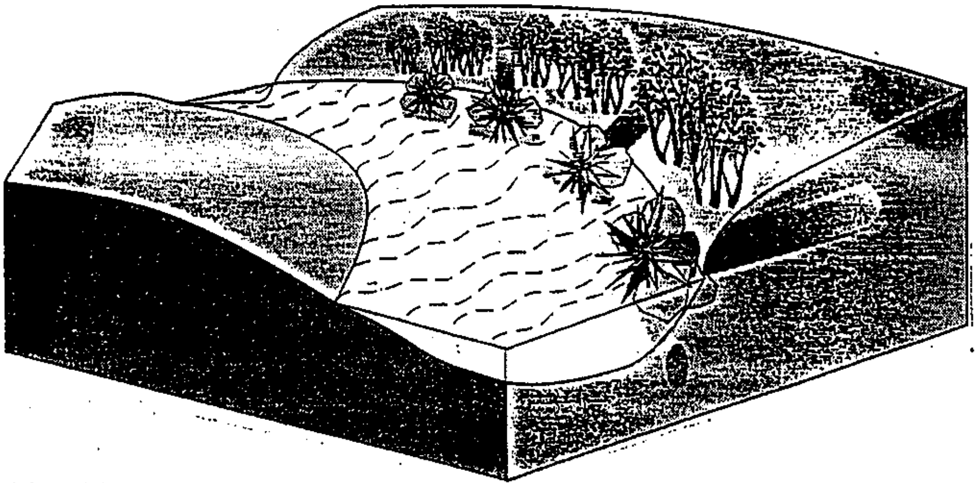
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

[1] Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

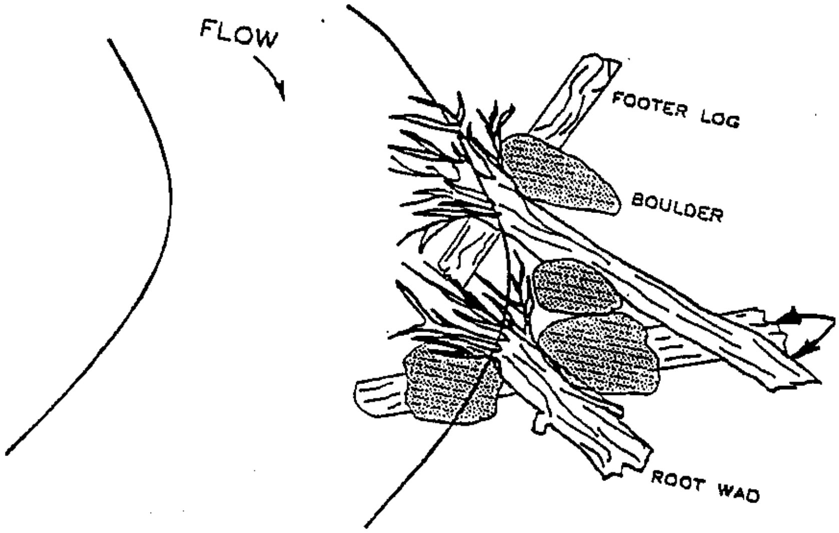
[2] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices

Bank Protection Measures

#6: Root Wads and Boulders

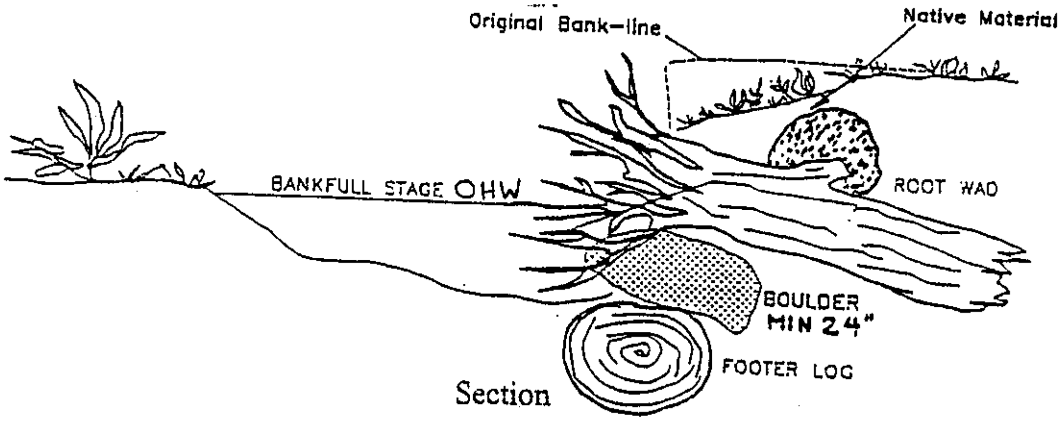


Source: Adapted from Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices.



minimum 20 foot logs buried minimum 16 ft into bank

Plan



Section

Source: Adapted from California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#7: Cellular Confinement System

Description:

Soil cellular confinement system (geocell) is a polyethylene plastic cellular system where structural strength is developed by the composite design of soil, plant roots, and the plastic's cellular configuration. This system is available in 8-inch deep honeycomb mats that are installed in offset vertical layers to create terraced planting areas. The honeycomb cells are filled with soil, moderately compacted, and planted with woody vegetation and grasses. The structure functions similarly to a crib wall structure.

This method has the capability of developing some vegetation potential.

Design Criteria:

Appropriate for slopes up to ½ to 1.

Appropriate for velocities up to 6 feet per second.

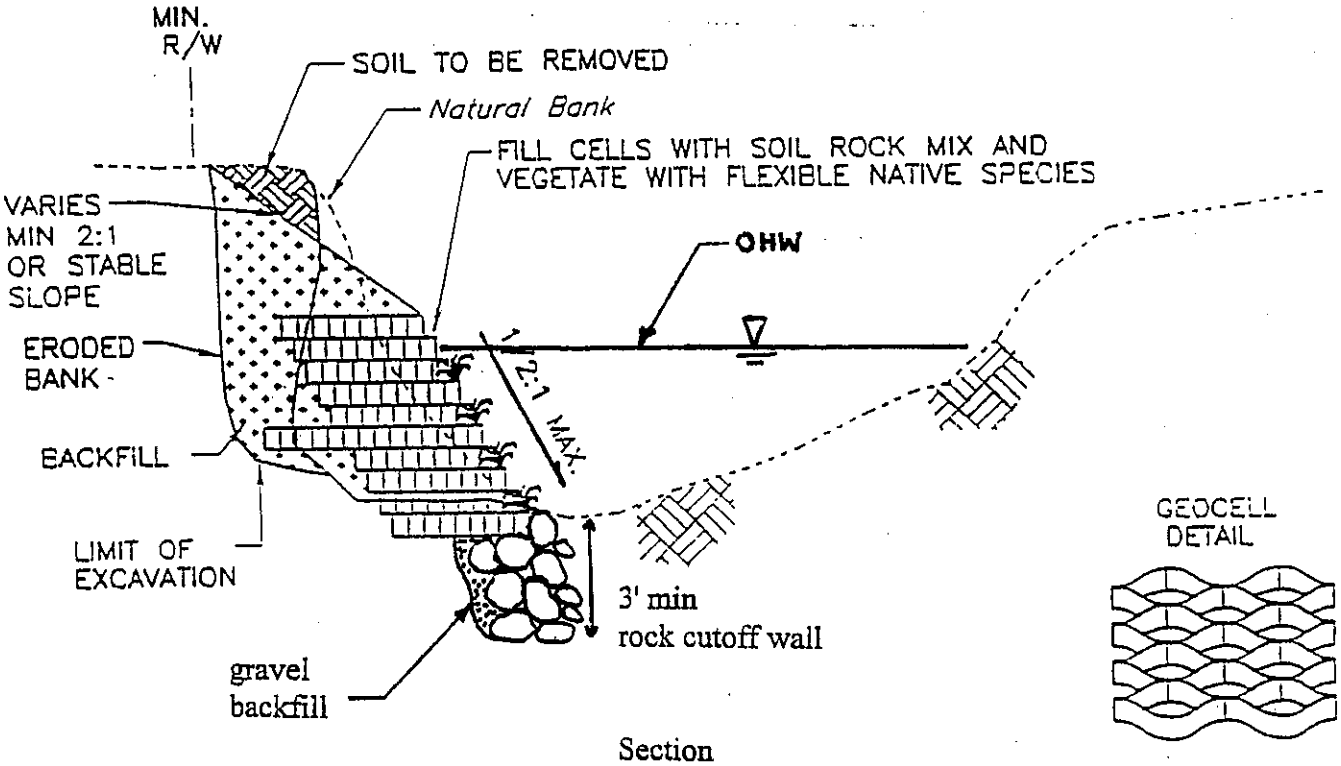
Habitat Impact Assessment:

In-stream:	Reduce or eliminate biotic potential
Stream-side:	Reduce or eliminate biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#7: Cellular Confinement System



Section

Bank Protection Measures

#7A: Cellular Confinement System with Vortex Weirs

Description:

Soil cellular confinement system (geocell) is a polyethylene plastic cellular system where structural strength is developed by the composite design of soil, plant roots, and the plastic's cellular configuration. This system is available in 8-inch deep honeycomb mats that are installed in offset vertical layers to create terraced planting areas. The honeycomb cells are filled with soil, moderately compacted, and planted with woody vegetation and grasses. The structure functions similarly to a crib wall structure. This method has the capability of developing some ruderal vegetation potential.

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1].

The vortex weirs are placed on the downstream end of the erosion repair project to stabilize the creek profile and protect the foundation of the erosion repair project.

Design Criteria:

Appropriate for slopes up to ½ to 1.

Appropriate for velocities up to 6 feet per second.

Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Reduces or eliminates biotic potential

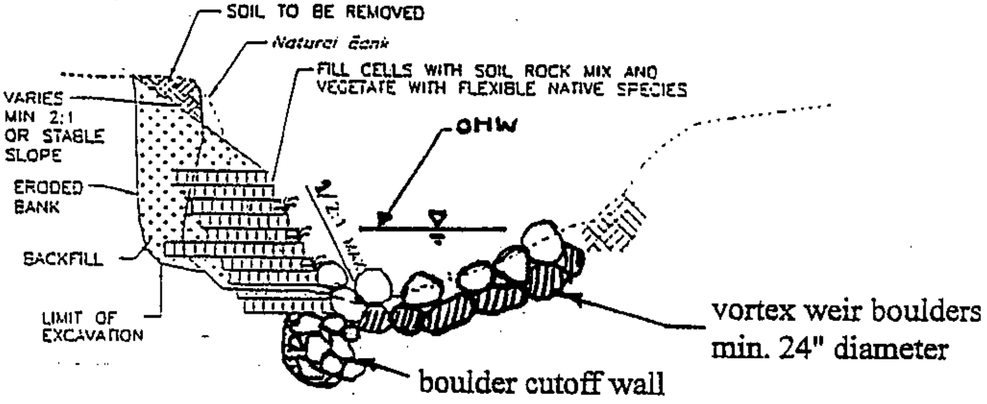
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

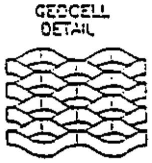
---

[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

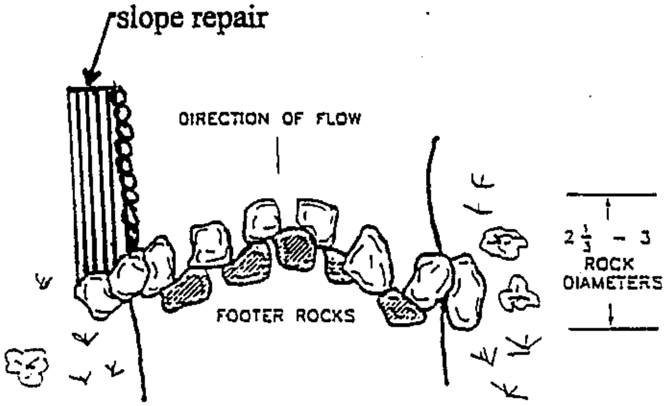
Bank Protection Measures

#7A: Cellular Confinement System with Vortex Weirs

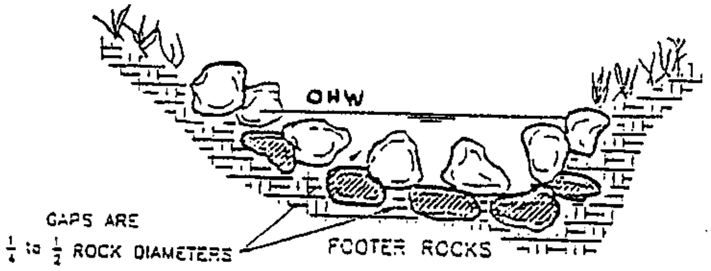

SOIL TO BE REMOVED
Natural Bank
FILL CELLS WITH SOIL ROCK MIX AND VEGETATE WITH FLEXIBLE NATIVE SPECIES
VARIES MIN 2:1 OR STABLE SLOPE
ERODED BANK
BACKFILL
LIMIT OF EXCAVATION
OHW
1/2:1 MAX
vortex weir boulders min. 24" diameter
boulder cutoff wall



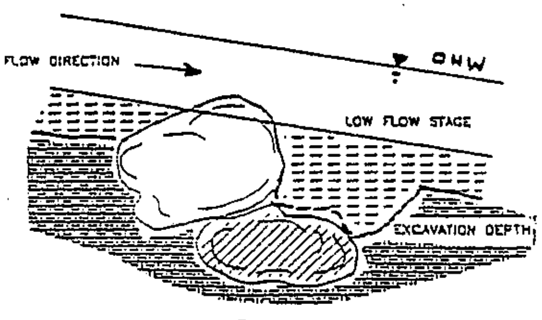
Section



plan view



cross section



profile view

Vortex Weirs: Plan, Section, and Profile

Source: Adapted from California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#8: Rock Blanket

Description:

This method consists of placing a blanket of appropriately sized rock over the bank to control erosion. The rock is underlain by at least 12 inches of gravel to eliminate washout of underlying soils, which would lead to slope failure in time. This method is appropriate where long term durability is needed, design discharge is high, there is significant threat to life or property, or there is no practical way to otherwise incorporate vegetation into the design. This method should, where appropriate, be used with soil bio-engineering systems or live vegetation to stabilize the upper bank and ensure a regenerative source of streambank vegetation. A major benefit of this method is that the components are flexible and function is not impaired by slight movement from settlement or other adjustments[1].

Angular rock should be used, because they tend to interlock, making the structure act like a single structure rather than a collection of independent stones.

Design Criteria:

Appropriate for slopes up to 1.5 to 1, preferably 2 to 1.

Rock sizes of 6" to 18" (Dia).

Appropriate for velocities up to 15 feet per second.

Habitat Impact Assessment:

In-stream:	Reduce or eliminate biotic potential
Stream-side:	Reduce or eliminate biotic potential

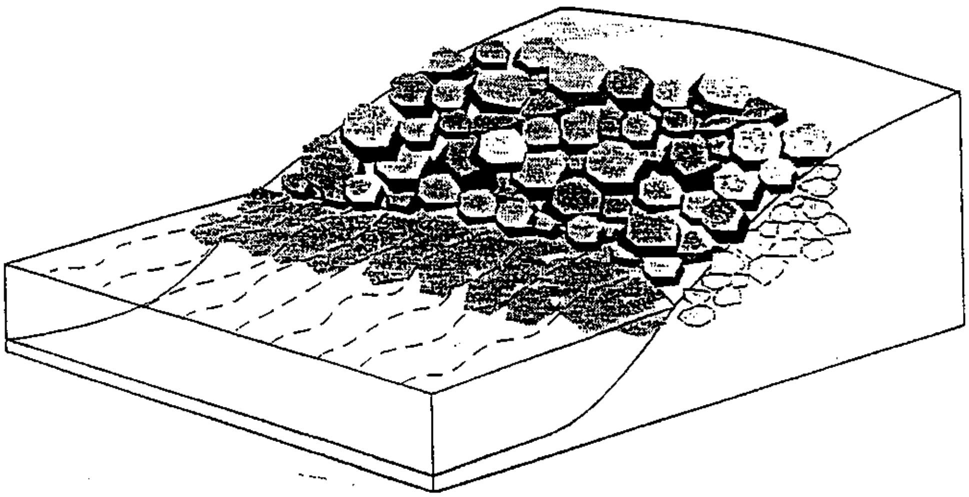
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

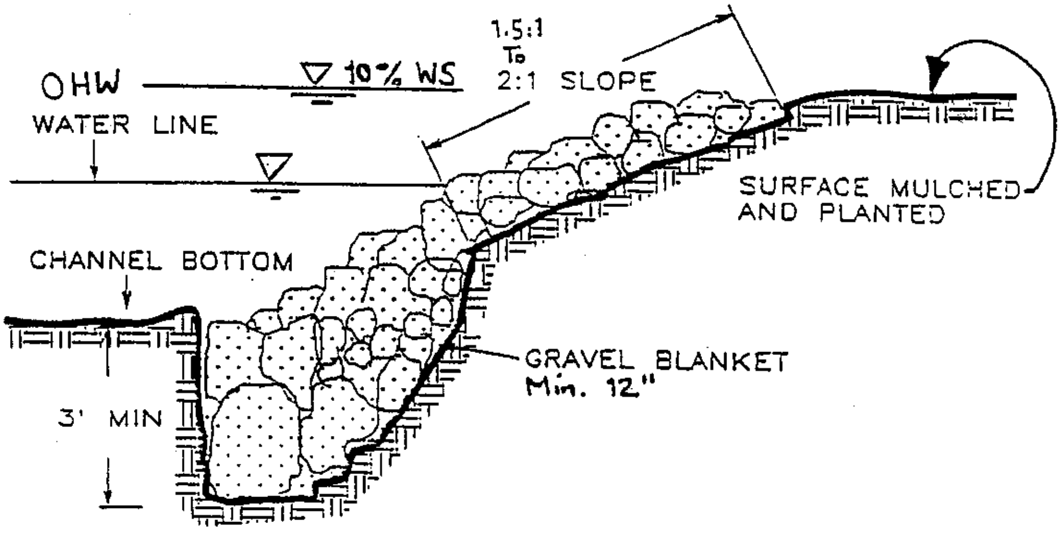
[1] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#8: Rock Blanket



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices



Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#8A: Boulder Revetment

Description:

Boulder rip-rap is a method for armoring stream banks with large boulders for preventing bank erosion. Rip-rap footing is laid in a "toe" trench dug along the base of the bank. Large boulders (min. 24") are then laid on the bank slopes up to the design water surface level (ordinary high water or other design water surface). Large angular boulders are best suited for this purpose. Boulder rip-rap can provide protection in areas where log or boulder instream structures may lead to bank erosion. The boulders used should be dense and structurally competent[1].

A gravel blanket that is at least 1 foot thick should be placed under the boulder rip-rap on slopes of 1:1 or greater. This is to prevent underlying soil from being washed out and causing slope slump and possible failure during periods of high flow. Geotextile fabrics should be avoided, as they prevent the natural establishment of vegetation[1].

This method should, where appropriate, be used with soil bio-engineering systems or live vegetation to stabilize the upper bank and ensure a regenerative source of streambank vegetation. A major benefit of this method is that the components are flexible and function is not impaired by slight movement from settlement or other adjustments[2].

This structure would allow for some natural revegetation of the bank.

Design Criteria:

Appropriate for slopes up to 1 to 1, preferably 2 to 1.

Appropriate for velocities up to 6 feet per second if boulder joints are planted, 15 feet per second if boulders are not planted.

Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Provides limited biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

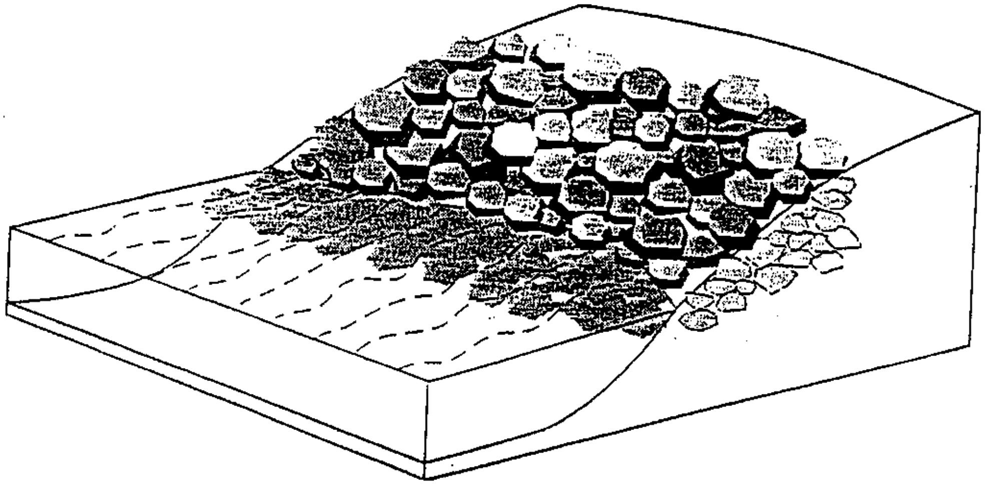
---

[1] Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

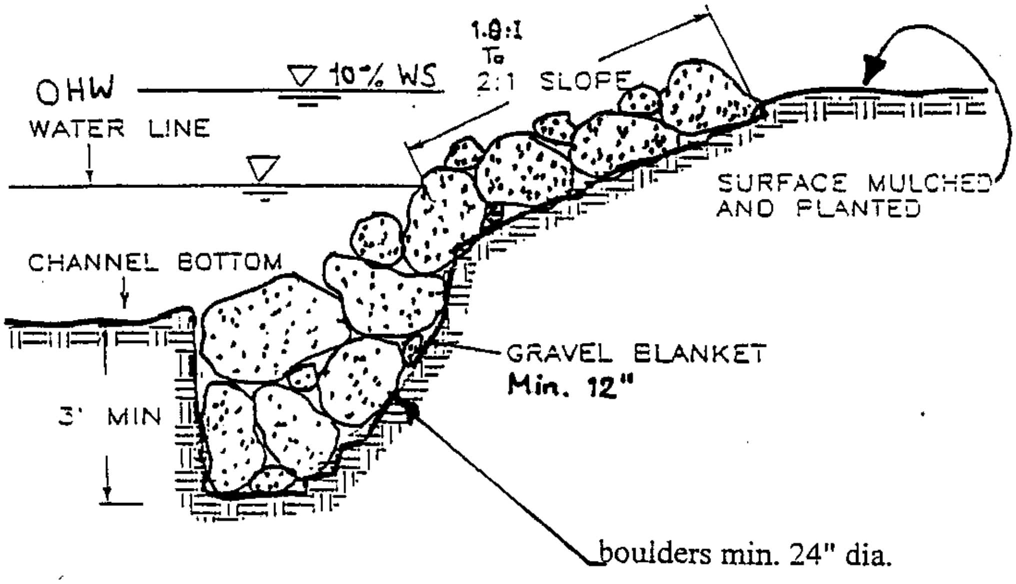
[2] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices

Bank Protection Measures

#8A: Boulder Revetment



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices



Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#8B: Boulder Revetment with Soil and Revegetation

Description:

Boulder rip-rap is a method for armoring stream banks with large boulders for preventing bank erosion. Rip-rap footing is laid in a "toe" trench dug along the base of the bank. Large boulders (min. 24") are then laid on the bank slopes up to the ordinary high water or other design water surface. Large angular boulders are best suited for this purpose. Boulder rip-rap can provide protection in areas where log or boulder instream structures may lead to bank erosion. The boulders used should be dense and structurally competent[1].

Soil is placed over the boulders and vegetation is installed by staking and/or direct seeding. Biodegradable erosion control mats are placed over the soil to help control erosion until vegetation establishes itself. Special care must be taken in staking to avoid damage to the stakes' cambium and to ensure good soil/water/stake contact. Thick rip-rap layers may require special tools for establishing staking pilot holes[2].

A gravel blanket that is at least 1 foot thick should be placed under the boulder rip-rap on slopes of 1:1 or greater. This is to prevent underlying soil from being washed out and causing slope slump and possible failure during periods of high flow. Geotextile fabrics should be avoided, as they prevent the natural establishment of vegetation[1].

This method should, where appropriate, be used with soil bio-engineering systems or live vegetation to stabilize the upper bank and ensure a regenerative source of streambank vegetation. A major benefit of this method is that the components are flexible and function is not impaired by slight movement from settlement or other adjustments[2].

Design Criteria:

Appropriate for slopes up to 1 to 1, preferably 2 to 1.
Appropriate for velocities up to 6 feet per second.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Provides limited biotic resources

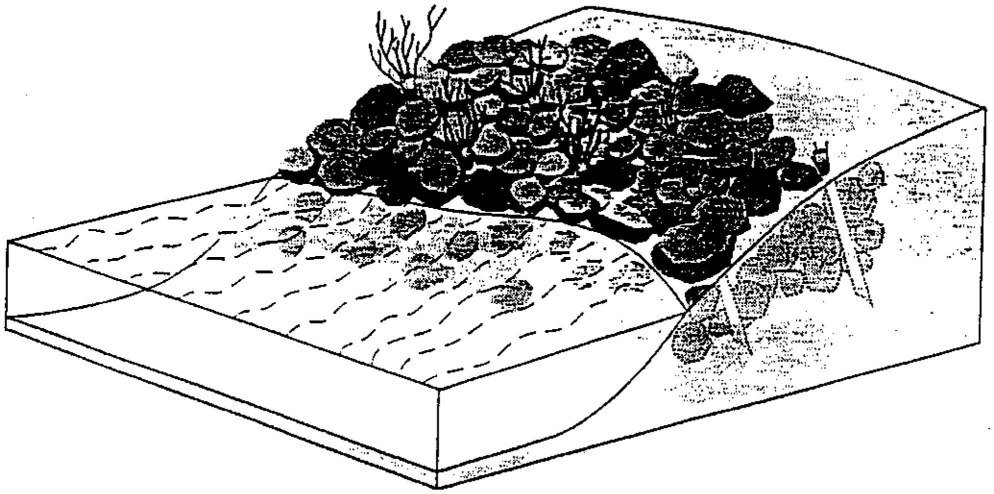
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

[1] Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

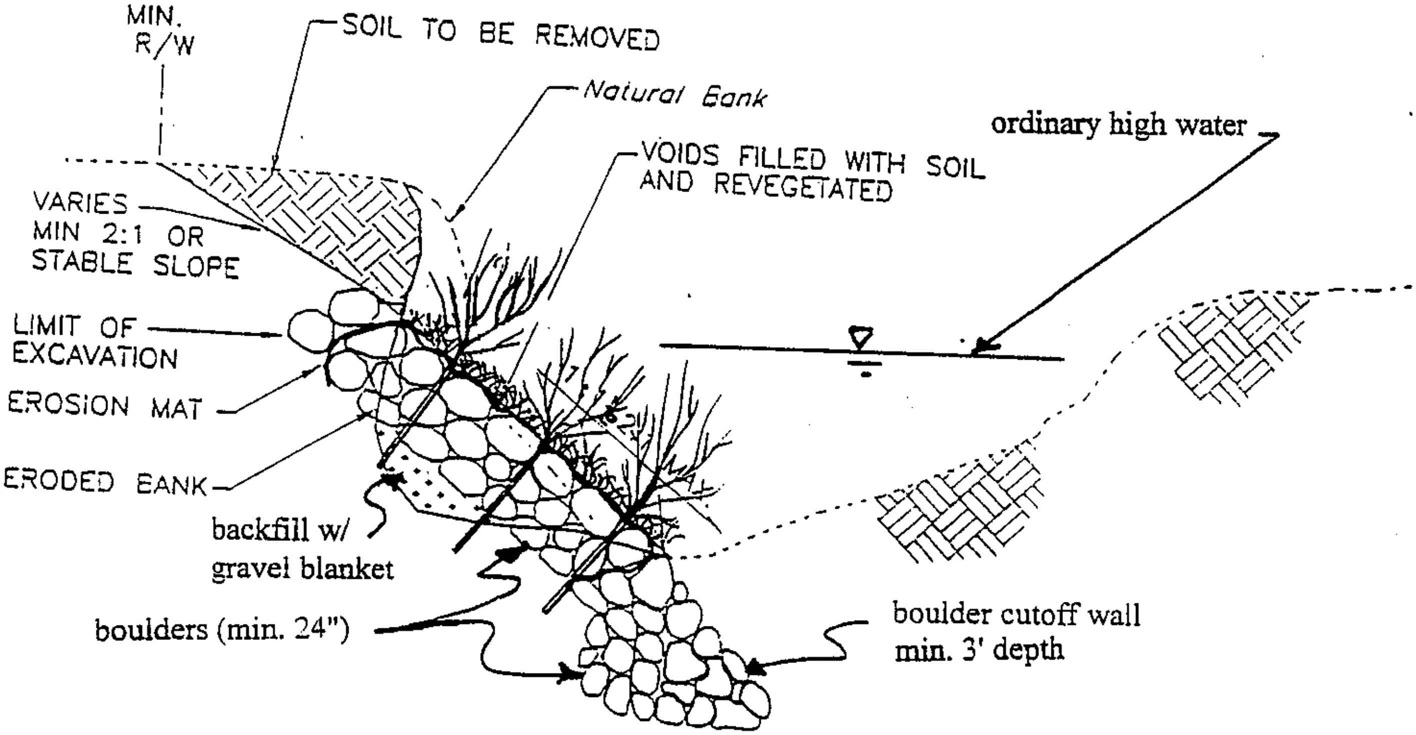
[2] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#8B: Boulder Revetment with Soil and Revegetation



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices


MIN. R/W
SOIL TO BE REMOVED
Natural Bank
ordinary high water
VOIDS FILLED WITH SOIL AND REVEGETATED
VARIES MIN 2:1 OR STABLE SLOPE
LIMIT OF EXCAVATION
EROSION MAT
ERODED BANK
backfill w/ gravel blanket
boulders (min. 24")
boulder cutoff wall min. 3' depth

Section

Bank Protection Measures

#8C: Boulder Revetment with Soil and Revegetation, and Vortex Weir

Description:

Boulder rip-rap is a method for armoring stream banks with large boulders for preventing bank erosion. Rip-rap footing is laid in a "toe" trench dug along the base of the bank. Large boulders (min. 24") are then laid on the bank slopes up to the design water surface level (ordinary high water or other design water surface). Large angular boulders are best suited for this purpose. Boulder rip-rap can provide protection in areas where log or boulder instream structures may lead to bank erosion. The boulders used should be dense and structurally competent[1].

Soil is placed over the boulders and vegetation is installed by staking and/or direct seeding. Biodegradable erosion control mats are placed over the soil to help control erosion until vegetation establishes itself. Special care must be taken in staking to avoid damage to the stakes' cambium and to ensure good soil/water/stake contact. Thick rip-rap layers may require special tools for establishing staking pilot holes[2].

A gravel blanket that is at least 1 foot thick should be placed under the boulder rip-rap on slopes of 1:1 or greater. This is to prevent underlying soil from being washed out and causing slope slump and possible failure during periods of high flow. Geotextile fabrics should be avoided, as they prevent the natural establishment of vegetation[1].

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1]. Weirs should be placed on downstream side of bank repair to protect profile.

This method should, where appropriate, be used with soil bio-engineering systems or live vegetation to stabilize the upper bank and ensure a regenerative source of streambank vegetation. A major benefit of this method is that the components are flexible and function is not impaired by slight movement from settlement or other adjustments[2].

Design Criteria:

Appropriate for slopes up to 1 to 1, preferably 2 to 1.
Appropriate for velocities up to 6 feet per second.

Habitat Impact Assessment:

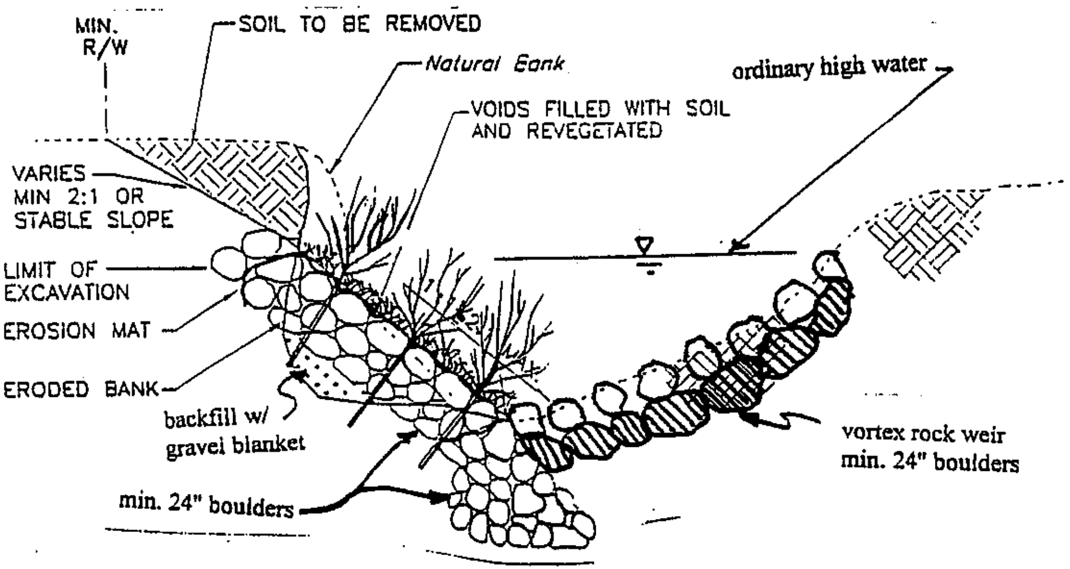
In-stream:	Enhances biotic resources
Stream-side:	Provides limited biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

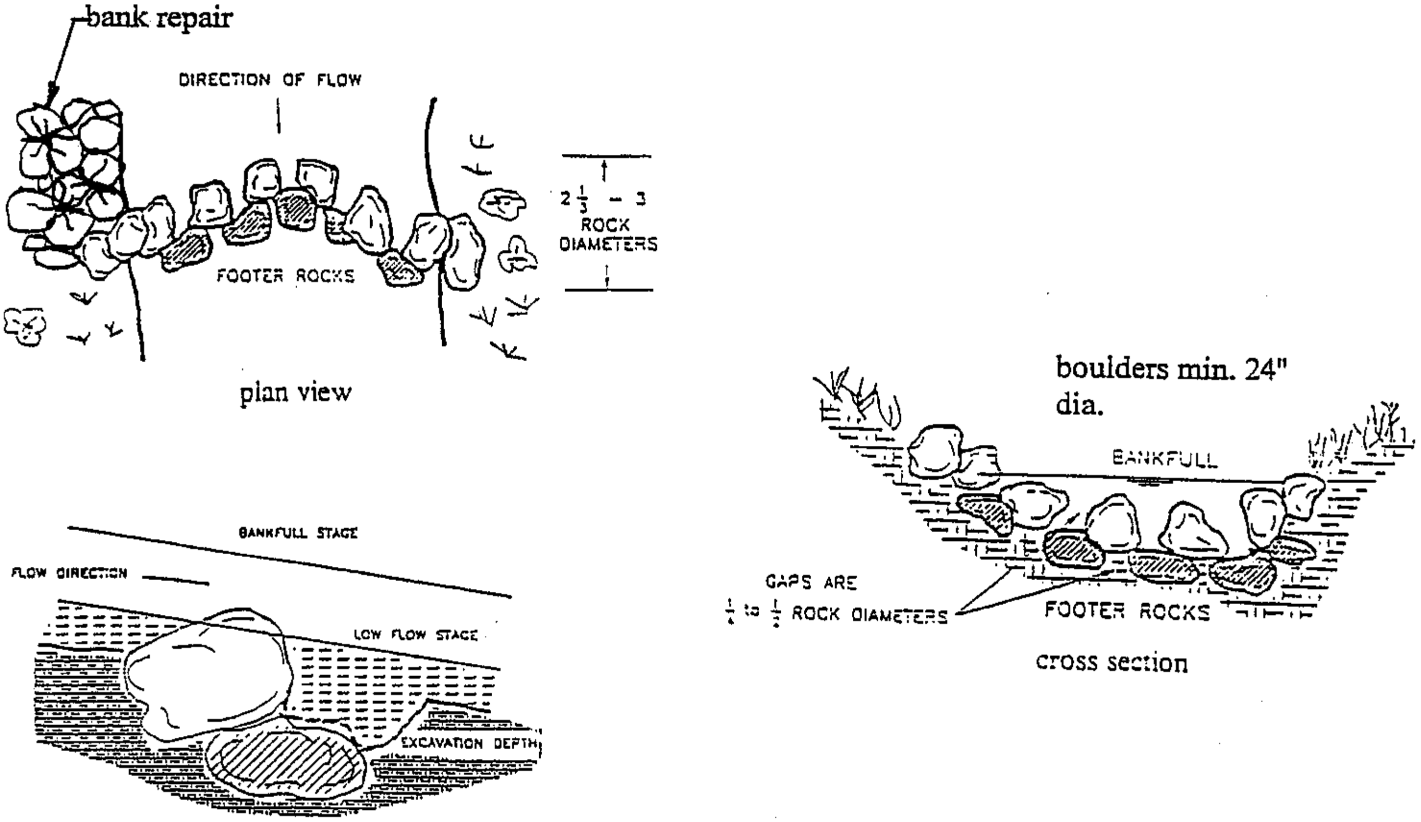
[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual
[2] Source: Natural Resources Conservation Service, Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

#8C: Boulder Rip-Rap, with Soil and Revegetation, and Vortex Weir


MIN. R/W
SOIL TO BE REMOVED
Natural Bank
ordinary high water
VOIDS FILLED WITH SOIL AND REVEGETATED
VARIES MIN 2:1 OR STABLE SLOPE
LIMIT OF EXCAVATION
EROSION MAT
ERODED BANK
backfill w/ gravel blanket
min. 24" boulders
vortex rock weir min. 24" boulders

Section



plan view

cross section

profile view

Vortex Weirs: Plan, Section, and Profile

Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#9: Stepped Gabions

Description:

This method consists of large wire baskets filled with rocks and placed on channel banks as mattresses or stacked in layers that resemble steps. The slope protection is extended until the ordinary high water surface level is reached. A rock cutoff wall is required if channel invert protection is not provided to prevent undermining the structure. Gabions can sometimes naturally revegetate, if adequate water and soil are available.

Design Criteria:

Appropriate for bank slopes from 0.75 to1 up to 3 to 1.

Appropriate for velocities up to 15 feet per second.

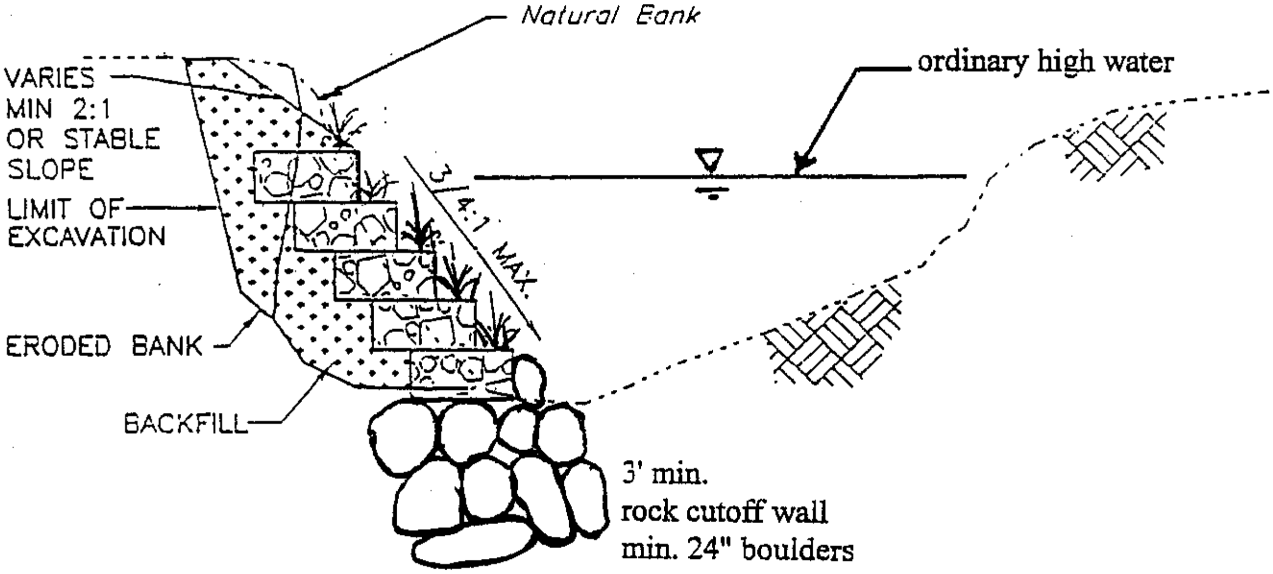
Habitat Impact Assessment:

In-stream:	Provide limited biotic resources
Stream-side:	Reduce or eliminate biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#9: Stepped Gabions



Section

Bank Protection Measures

#9A: Stepped Gabions with Planting Areas

Description:

This method consists of large wire baskets filled with rocks and placed on channel banks stacked in layers that resemble steps. The layers are stacked, one on top of the other, until the ordinary high water surface level is reached. A rock cutoff wall is required if channel invert protection is not provided to prevent undermining the structure.

Gabions are revegetated using planting boxes. Planting boxes are gabion cells that are left open to bare soil and revegetated with shrubs and trees. Irrigation is provided to the planted vegetation to aid plant establishment. The gabion baskets themselves can sometimes naturally revegetate, if adequate water and soil are available.

Design Criteria:

Appropriate for slopes from 0.75 to1 up to 3 to 1.

Appropriate for velocities up to 6 feet per second.

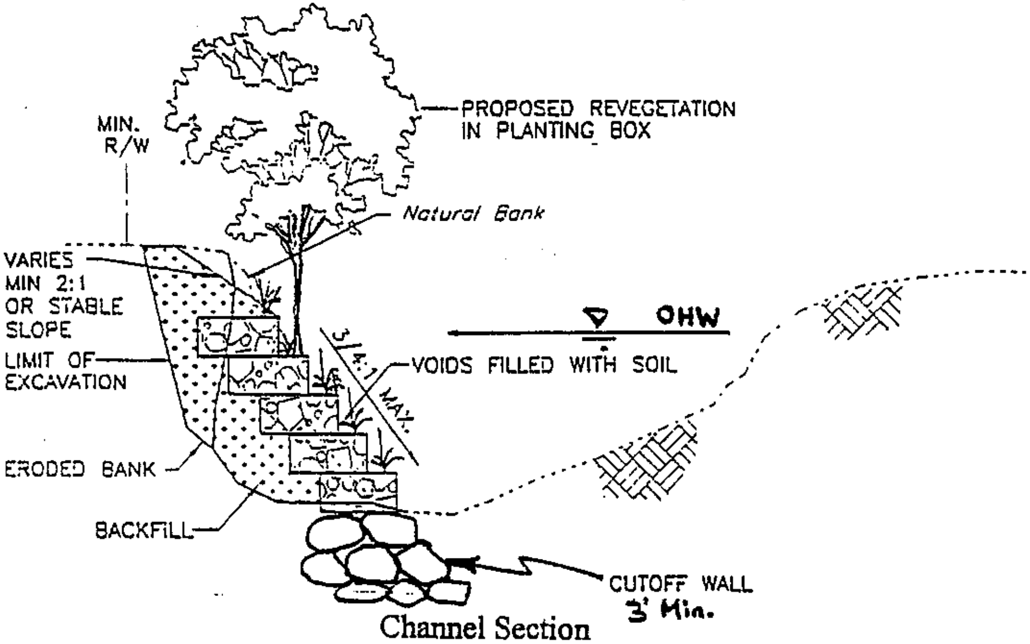
Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Reduces or eliminates biotic potential

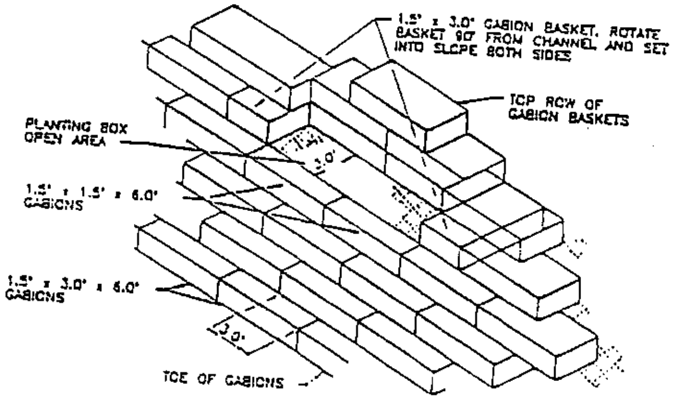
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

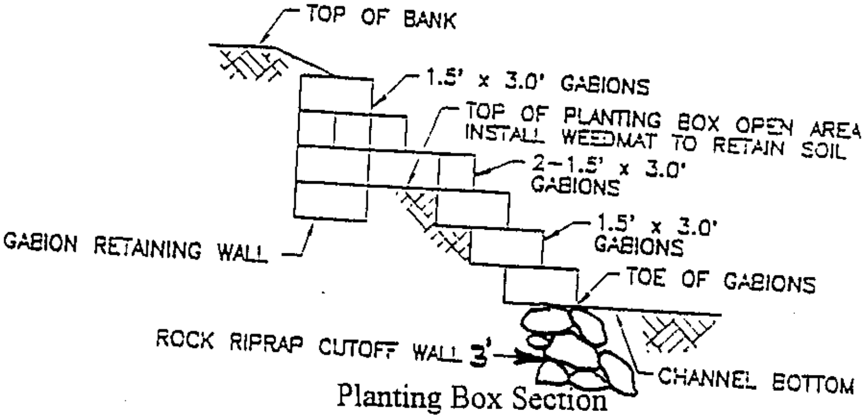
#9A: Stepped Gabions with Planting Areas



Channel Section


1.5' x 3.0' GABION BASKET. ROTATE BASKET 90° FROM CHANNEL AND SET INTO SLOPE BOTH SIDES
TOP ROW OF GABION BASKETS
PLANTING BOX OPEN AREA
1.5'
3.0'
1.5' x 1.5' x 6.0' GABIONS
1.5' x 3.0' x 6.0' GABIONS
3.0'
TOE OF GABIONS

Planting Box Detail



Planting Box Section

Bank Protection Measures

#9B: Stepped Gabions with Planting Areas and Vortex Rock Weirs

Description:

This method consists of large wire baskets filled with rocks and placed on channel banks stacked in layers that resemble steps. The layers are stacked, one on top of the other, until the design water surface (ordinary high water or other) is reached. A concrete, gabion, or rock cutoff wall is required if channel invert protection is not provided to prevent undermining the structure.

Gabions can be revegetated using planting boxes. Planting boxes are gabion cells that are left open to bare soil and revegetated with shrubs and trees. Irrigation is provided to the planted vegetation to aid plant establishment. The unplanted gabions can sometimes naturally revegetate, if adequate water and soil are available.

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1]. Weirs should be placed on the downstream end of erosion protection structure to help maintain profile.

Design Criteria:

Appropriate for bank slopes from 0.75 to1 up to 3 to 1.

Appropriate for velocities up to 6 feet per second.

Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Provides limited biotic potential
Stream-side:	Reduces or eliminates biotic potential

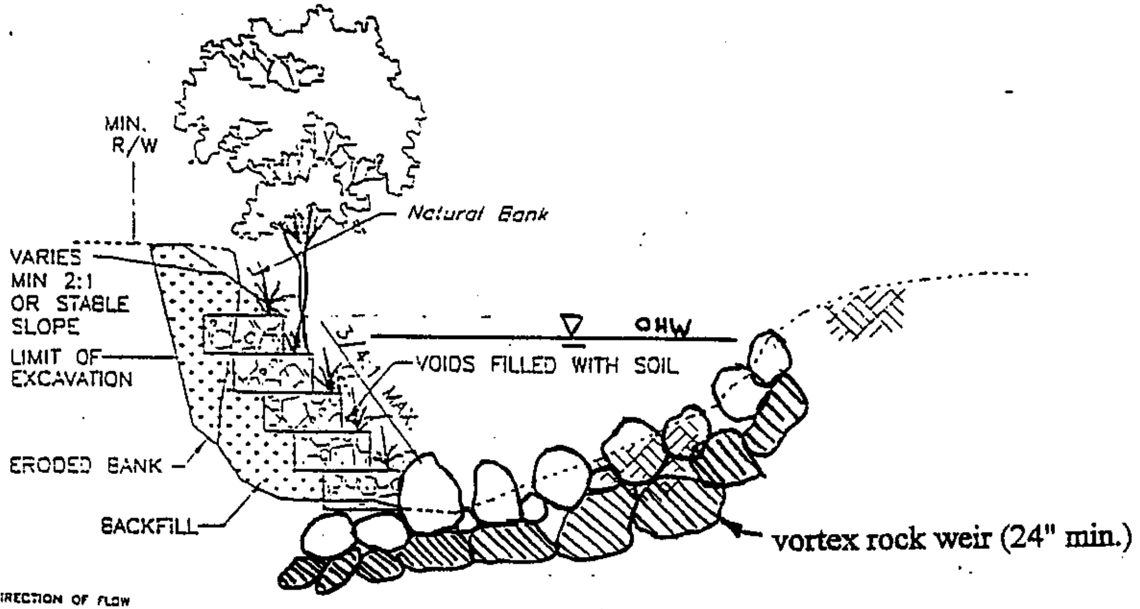
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

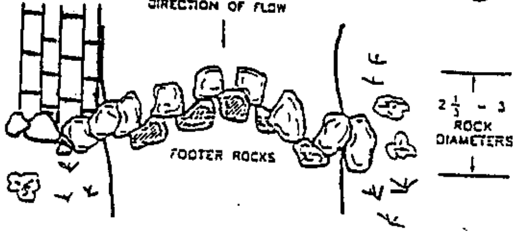
[1] Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

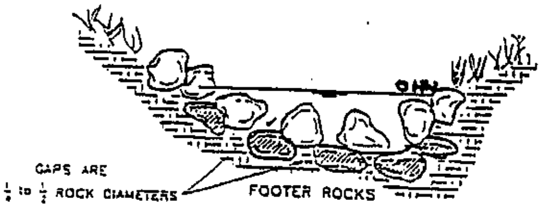
#9B: Stepped Gabions with Planting Areas and Vortex Rock Weirs



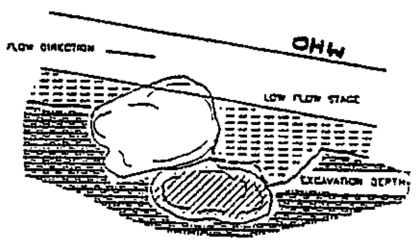
Channel Section



plan view

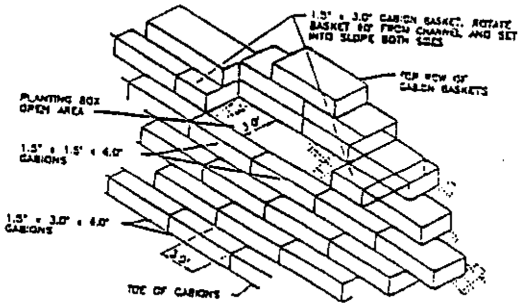


cross section

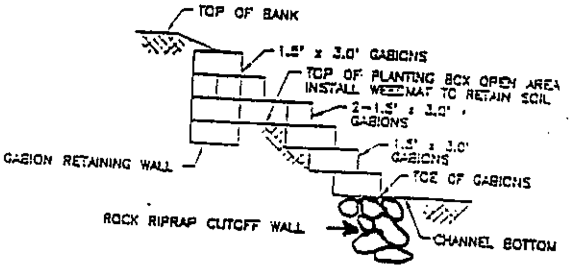


profile view

Vortex Weirs: Plan, Section, and Profile


1.5' x 3.0' GABION BASKET, ROTATE BASKET 90° FROM CHANNEL AND SET INTO SLOPE BOTH SIDES
TOP ROW OF GABION BASKETS
PLANTING BOX OPEN AREA
3.0'
1.5' x 1.5' x 4.0' GABIONS
1.5' x 3.0' x 4.0' GABIONS
3.0'
TOE OF GABIONS

Planting Box Detail



Planting Box Section

Source: Adapted from California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#10: Articulated Concrete Blocks

Description:

Articulated concrete blocks (ACB) consists of concrete interlocking blocks that are cabled together to form mats that can be laid on the channel slope and/or channel bottom. The ACB is extended below the invert to form a cutoff wall.

ACBs are available in two styles: open cell and closed cell. The open cell style allows for vegetation to be recruited into the soil filling of the cell. Vegetation growth is restricted by the sizes of the cell openings and by the disconnection caused by the cell walls.

Design Criteria:

Appropriate for slopes up to 1 to 1.

Appropriate for velocities up to 15 feet per second for closed cell ACBs, 6 feet per second for open cell ACBs.

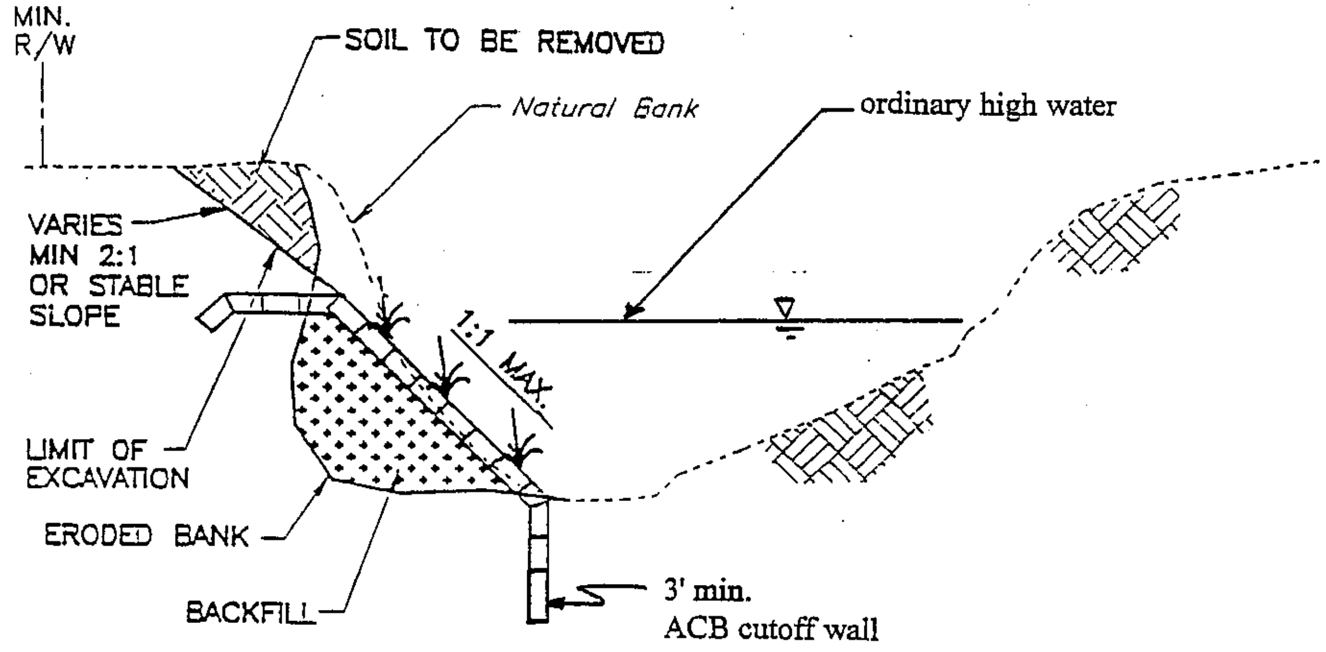
Habitat Impact Assessment:

In-stream:	Provide limited biotic resources
Stream-side:	Reduce or eliminate biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#10: Articulated Concrete Blocks



Section

Bank Protection Measures

#10A: Articulated Concrete Blocks with Planting Areas

Description:

Articulated concrete blocks (ACB) consists of concrete interlocking blocks that are cabled together to form mats that can be laid on the channel slope and/or channel bottom. The ACB is extended below invert as a cutoff wall to prevent undermining of slope protection.

ACBs are available in two styles: open cell and closed cell. The open cell style allows for vegetation to be recruited into the soil filling of the cell. Vegetation growth is restricted by the sizes of the cell openings and by the disconnection caused by the cell walls.

Open planting areas can be constructed into the ACB mats by creating an opening in the mat by removing some of the blocks. The open areas can be revegetated with shrubs and trees. Irrigation is provided to the planted vegetation to aid plant establishment.

Design Criteria:

Appropriate for slopes up to 1 to 1.

Appropriate for velocities up to 15 feet per second for closed cell ACBs, 6 feet per second for open cell ACBs.

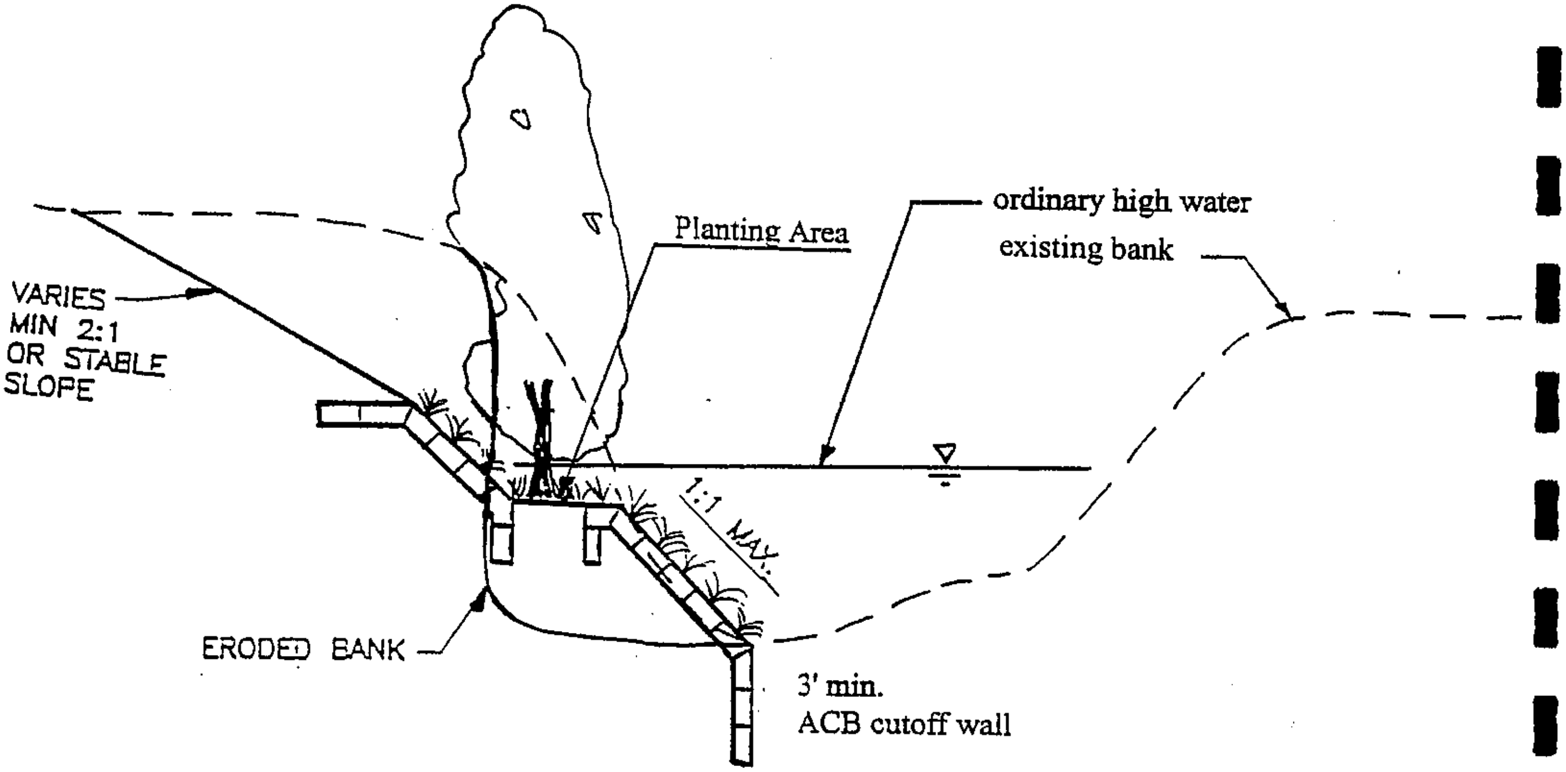
Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Reduces or eliminates biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#10A: Articulated Concrete Blocks with Planting Areas



Section

Bank Protection Measures

#10B: Articulated Concrete Blocks with Planting Areas and Vortex Rock Weirs

Description:

Articulated concrete blocks (ACB) consists of concrete interlocking blocks that are cabled together to form mats that can be laid on the channel slope and/or channel bottom. The ACB is extended below invert as a cutoff wall to prevent undermining of slope protection.

ACBs are available in two styles: open cell and closed cell. The open cell style allows for vegetation to be recruited into the soil filling of the cell. Vegetation growth is restricted by the sizes of the cell openings and by the disconnection caused by the cell walls.

Open planting areas can be constructed into the ACB mats by creating an opening in the mat by removing some of the blocks. The open areas can be revegetated with shrubs and trees. Irrigation is provided to the planted vegetation to aid plant establishment.

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1]. Weirs are built on the downstream end of bank repair project to help control profile.

Design Criteria:

Appropriate for slopes up to 1 to 1.
Appropriate for velocities up to 15 feet per second for closed cell ACBs, 6 feet per second for open cell ACBs.
Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Provides limited biotic resources

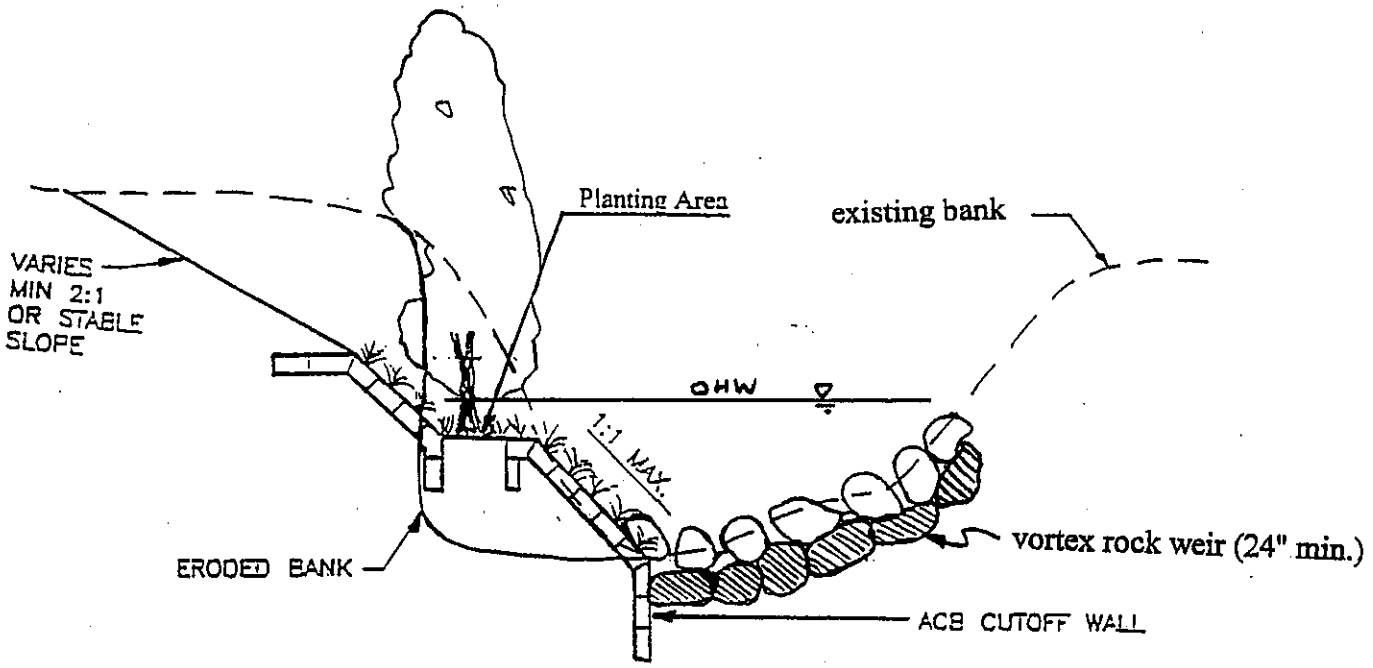
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

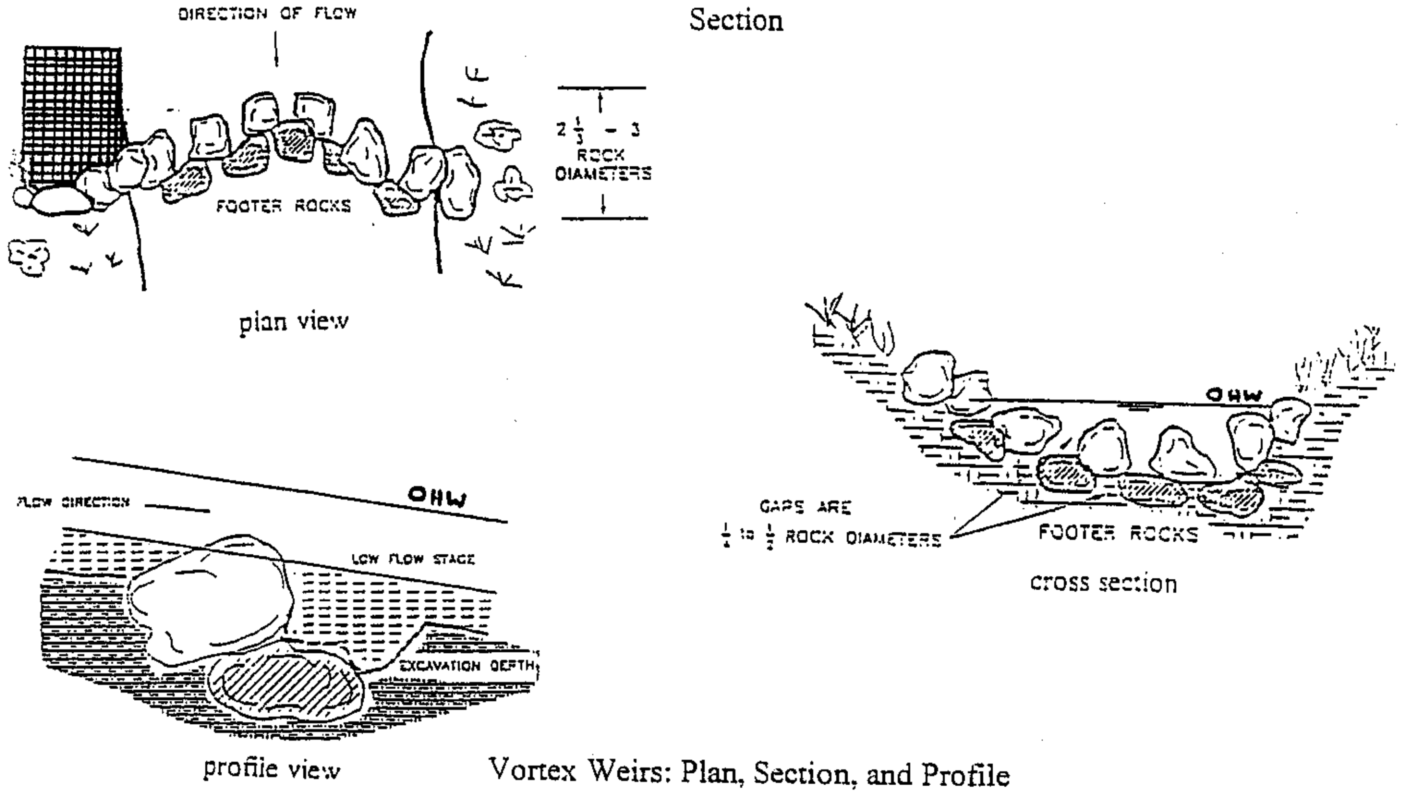
[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#10B: Articulated Concrete Blocks with Planting Areas and Vortex Rock Weirs



Section



plan view

cross section

profile view

Vortex Weirs: Plan, Section, and Profile

Source: Adapted from California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#11: Concrete Crib Walls

Description:

Concrete crib walls consist of stacked interlocking concrete frames that form a retaining wall. The structural strength is developed by the composite design of a concrete frame with compacted backfill. Crib walls are constructed with open face panels that are planted by live staking. This method restricts plant growth by the size of the panel opening. As the crib wall slope is flattened and the lattice becomes more open, the vegetation potential increases and the allowable velocity decreases because of the exposed soil and vegetation.

Design Criteria:

Appropriate for slopes up to 1/4 to 1.

Appropriate for velocities from 6 feet per second up to 15 feet per second, depending on the size of the crib wall's openings.

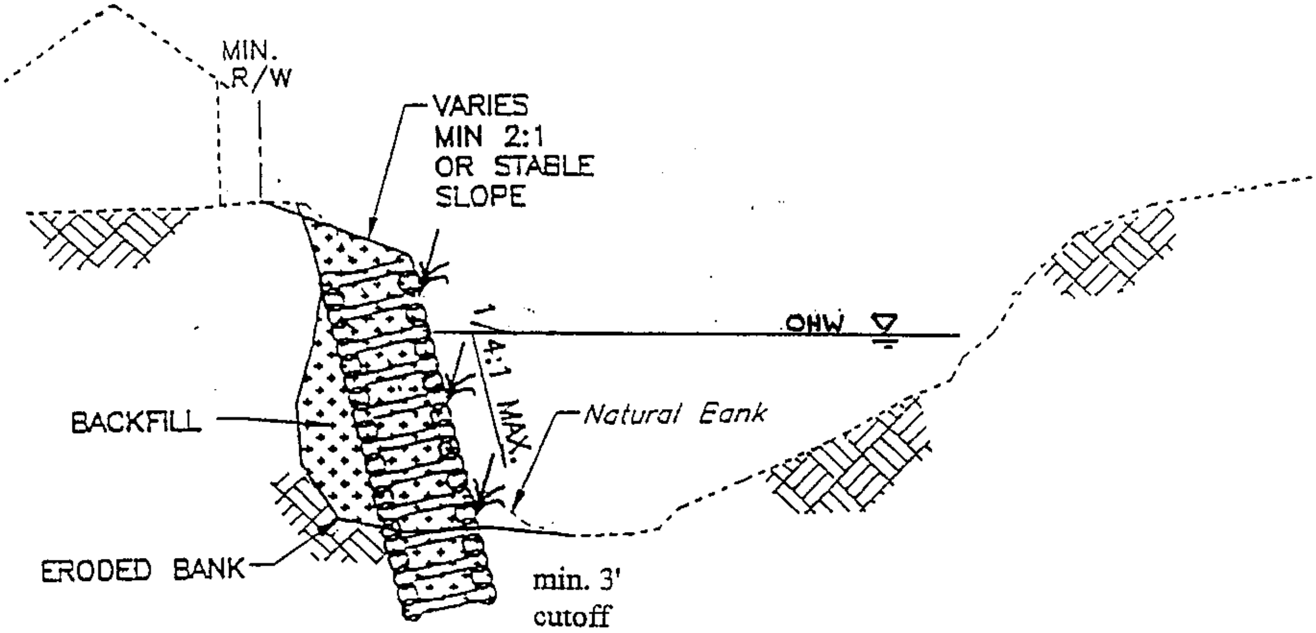
Habitat Impact Assessment:

In-stream:	Reduces or eliminates biotic potential
Stream-side:	Reduces or eliminates biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#11: Concrete Crib Walls



Section

Bank Protection Measures

#11A: Concrete Crib Walls with Vortex Rock Weirs

Description:

Concrete crib walls consist of stacked interlocking concrete frames that form a retaining wall. The structural strength is developed by the composite design of a concrete frame with compacted backfill. Crib walls are constructed with open face panels that are planted by live staking. This method restricts plant growth by the size of the panel opening. As the crib wall slope is flattened and the lattice becomes more open, the vegetation potential increases and the allowable velocity decreases because of the exposed soil and vegetation.

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1]. Weirs are built on the downstream end of the bank repair project to help maintain profile.

Design Criteria:

Appropriate for slopes up to 1/4 to 1.

Appropriate for velocities from 6 feet per second up to 15 feet per second, depending on the size of the crib wall's openings.

Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Provides limited biotic resources
Stream-side:	Reduces or eliminates biotic potential

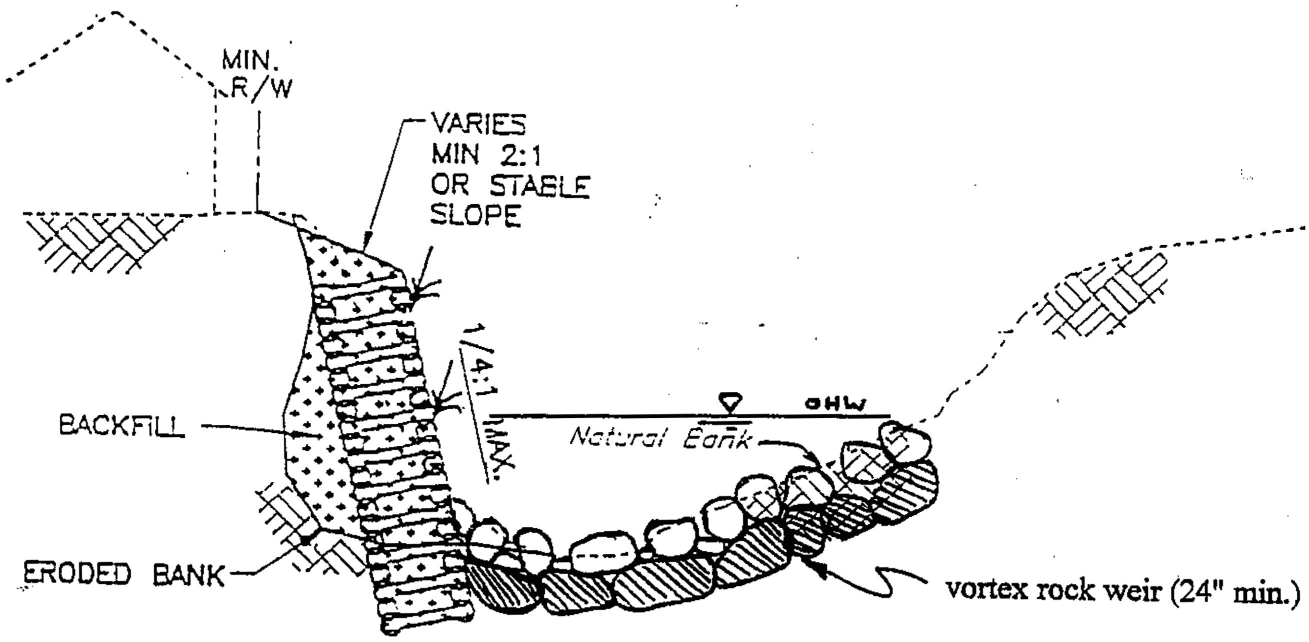
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

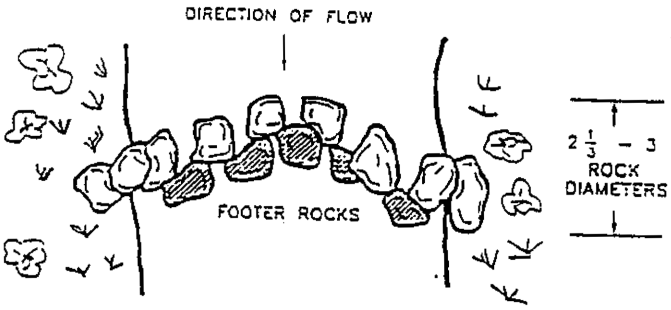
[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

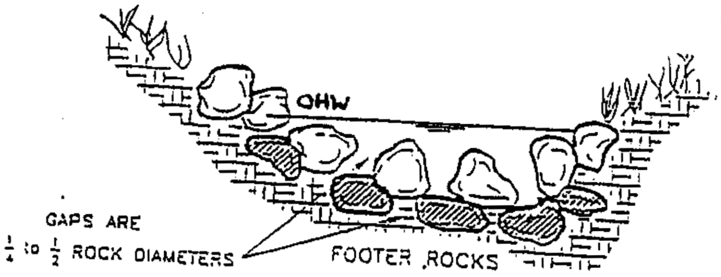
#11A: Concrete Crib Walls with Vortex Rock Weirs



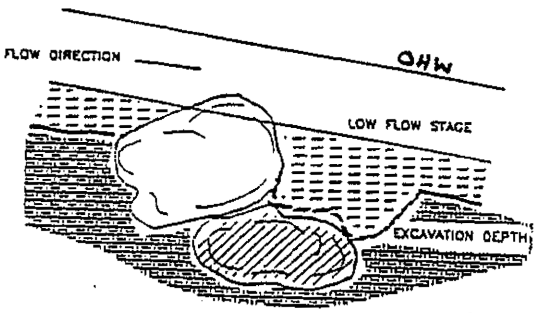
Section



plan view



cross section



profile view

Vortex Weirs: Plan, Section, and Profile

Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#12: Live Log Crib Walls

Description:

Log crib walls are used to reduce sediment input and protect banks in areas where logs are available and boulders are not practical[1]. Cribbing provides protection in areas with near-vertical banks where bank sloping options are limited by issues such as right of way restrictions[2]. Cribwalls afford a natural appearance, immediate protection, and accelerate the establishment of woody species[2]. This method is effective on the outside of bends where high velocities are present and in situations where a low wall may be required to stabilize the toe and reduce slope steepness[2]. This method does not adjust to toe scour and should be used in combination with soil bioengineering systems and live plantings to stabilize the upper slopes[2]. Logs should be selected for soundness, durability, uniformity of size, and ease of handling (straight logs much preferred) and delivery.

Two rows of base logs are placed in trenches below stream grade to prevent undercutting of the structure. Base logs should be as large (long and thick) as can be manipulated while conforming to the contour of the stream bank. Good base logs are crucial to ensure stability and durability of the crib wall[1]. Geotextile fabric should be placed behind the structure. Tie-back logs are notched into the base logs and placed at regular intervals (6 to 8 feet typically) along the base logs. Tie-back logs are attached to both rows of base logs using re-bar or cables. There should be at least two tie-back logs connecting each pair of base logs. Once the first row of tie-back logs has been connected, a second set of face logs is placed on top of the tie-backs. These logs are placed approximately 6 inches back into the slope. This procedure is repeated until the desired level of bank protection is achieved. As each lift is constructed, the face logs and tie-backs are filled with a mix of gravel and cobbles to the top of the face log. It is not necessary to use topsoil in the fill material; but there should be sufficient fine grained material to insure vegetation growth. Live cuttings are then laid in to form a complete cover layer. These live branches should be long enough to have their butt ends in the soil behind the crib wall. The tips should stick out of the crib wall no more than a quarter of the cutting total length. The branches are then covered with the gravel/cobble mix to the top of the tie-backs, and the next layer is continued.

Design Criteria:

Appropriate for slopes up to 1/4 to 1.
Appropriate for velocities from 6 feet per second up to12 feet per second, depending on opening size.

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

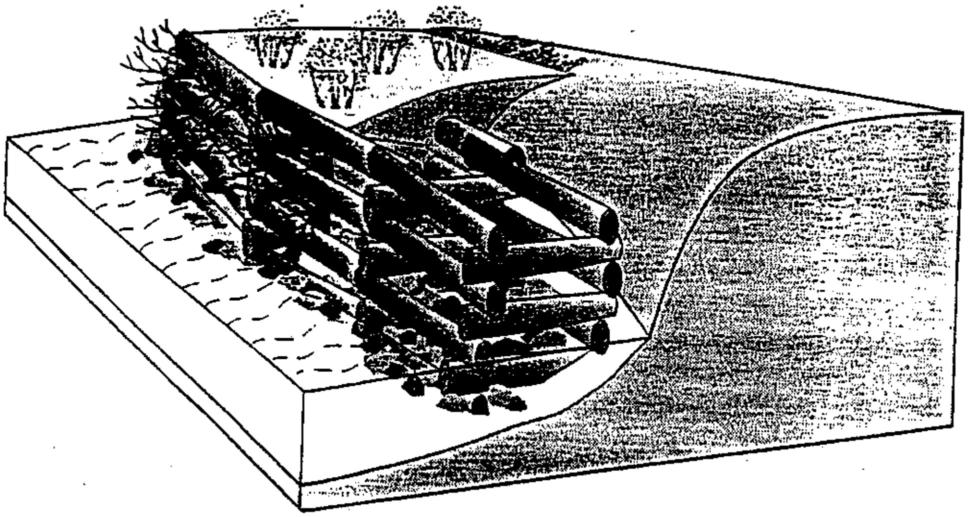
---

[1] Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

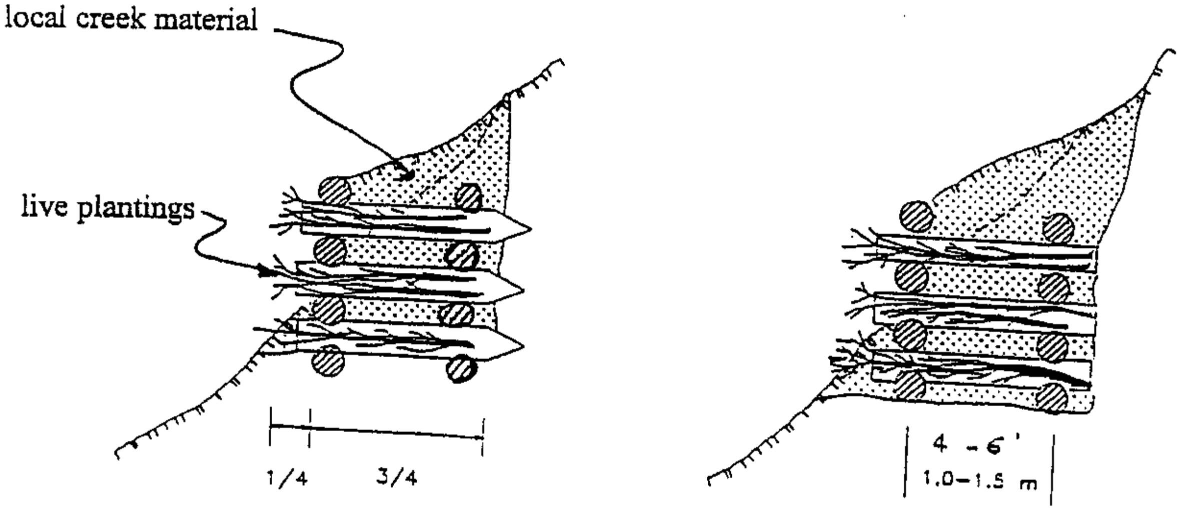
[2] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices

Bank Protection Measures

#12: Live Log Crib Walls



Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices



Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#12A: Live Log Crib Walls with Vortex Rock Weirs

Description:

Log crib walls are used to reduce sediment input and protect banks in areas where logs are available and boulders are not practical[1]. Cribbing provides protection in areas with near-vertical banks where bank sloping options are limited by issues such as right of way restrictions[2]. Cribwalls afford a natural appearance, immediate protection, and accelerate the establishment of woody species[2]. This method is effective on the outside of bends where high velocities are present and in situations where a low wall may be required to stabilize the toe and reduce slope steepness[2]. This method does not adjust to toe scour and should be used in combination with soil bioengineering systems and live plantings to stabilize the upper slopes[2]. Logs should be selected for soundness, durability, uniformity of size, and ease of handling (straight logs much preferred) and delivery.

Two rows of base logs are placed in trenches below stream grade to prevent undercutting of the structure. Base logs should be as large (long and thick) as can be manipulated while conforming to the contour of the stream bank. Good base logs are crucial to ensure stability and durability of the crib wall[1]. Geotextile fabric should be placed behind the structure. Tie-back logs are notched into the base logs and placed at regular intervals (6 to 8 feet typically) along the base logs. Tie-back logs are attached to both rows of base logs using re-bar or cables. There should be at least two tie-back logs connecting each pair of base logs. Once the first row of tie-back logs has been connected, a second set of face logs is placed on top of the tie-backs. These logs are placed approximately 6 inches back into the slope. This procedure is repeated until the desired level of bank protection is achieved. As each lift is constructed, the face logs and tie-backs are filled with a mix of gravel and cobbles to the top of the face log. It is not necessary to use topsoil in the fill material; but there should be sufficient fine grained material to insure vegetation growth. Live cuttings are then laid in to form a complete cover layer. These live branches should be long enough to have their butt ends in the soil behind the crib wall. The tips should stick out of the crib wall no more than a quarter of the cutting total length. The branches are then covered with the gravel/cobble mix to the top of the tie-backs, and the next layer is continued.

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1].

Design Criteria:

Appropriate for slopes up to 1/4 to 1. Appropriate for velocities from 6 feet per second up to 12 feet per second, depending on opening size. Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Enhances biotic resources
Stream-side:	Enhances biotic resources

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

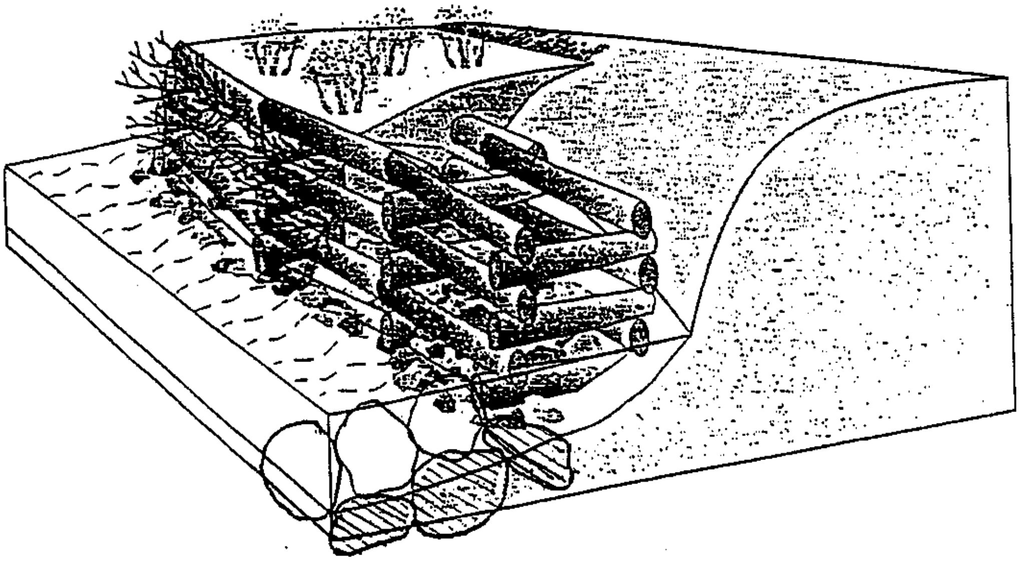
---

[1] Source: *California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual*

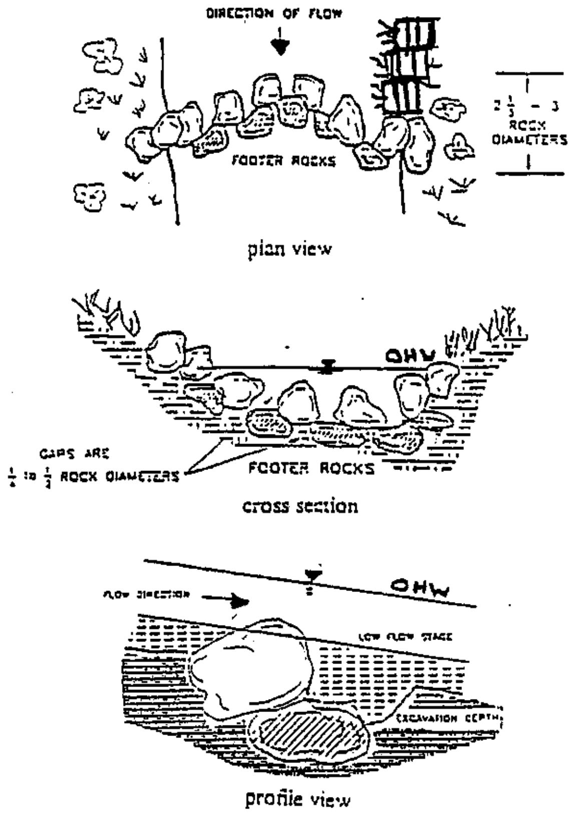
[2] Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles, Processes and Practices

Bank Protection Measures

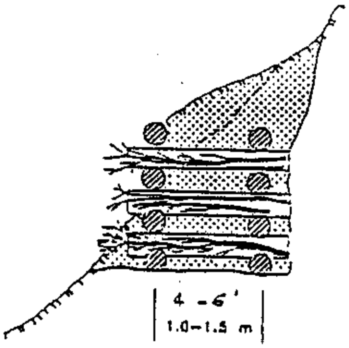
#12A: Live Log Crib Walls with Vortex Rock Weirs

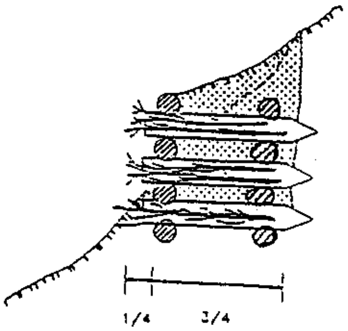


Source: Natural Resources Conservation Service. Stream Corridor Restoration Principles. Processes and Practices



Vortex Weirs: Plan. Section. and Profile





Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures
#13: Sacked Concrete

Description:

Sacked concrete slope protection (SCSP) consists of burlap bags filled with concrete and placed against channel banks. SCSP requires a concrete or SCSP cutoff wall at the toe of the slope to prevent failure. SCSP does not provide any revegetation potential. However, it offers the opportunity to contour walls such that existing vegetation is avoided (tree wells).

Design Criteria:

Appropriate for slopes up to 1/2 to 1.
Appropriate for velocities up to 15 feet per second.

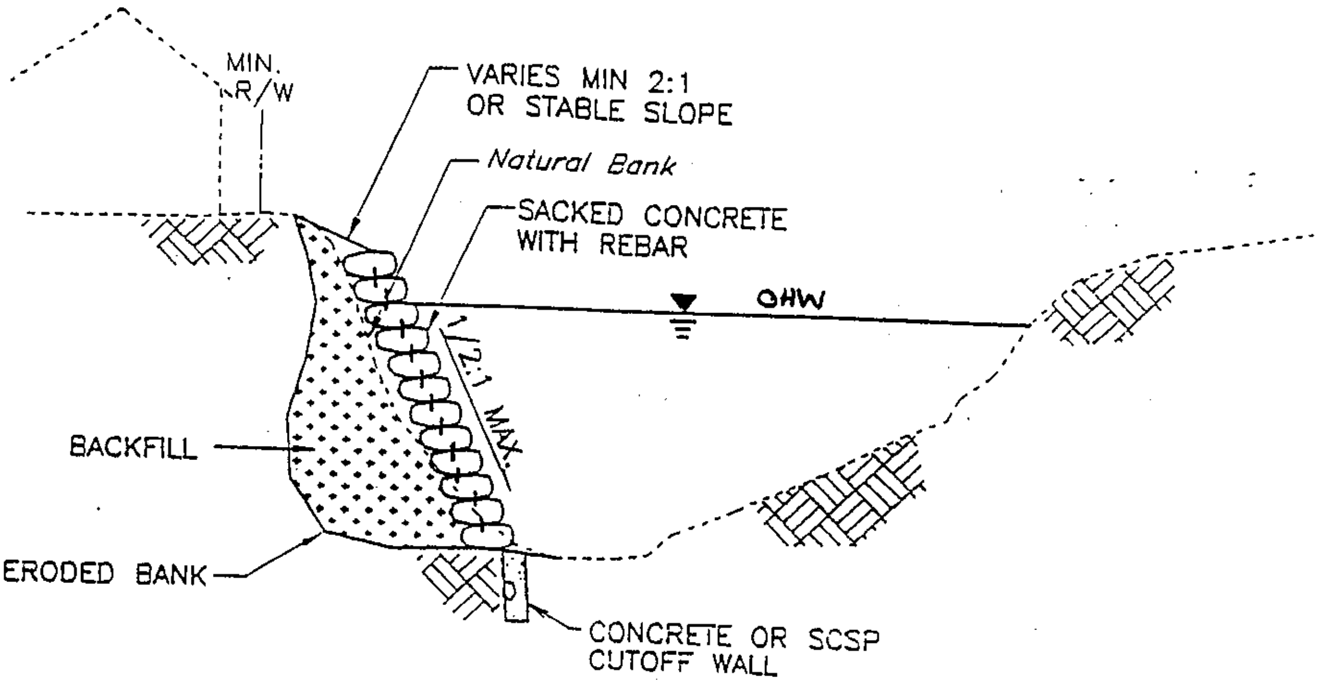
Habitat Impact Assessment:

In-stream:	Reduces or eliminates biotic potential
Stream-side:	Reduces or eliminates biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Bank Protection Measures

#13: Sacked Concrete


MIN. R/W
VARIES MIN 2:1 OR STABLE SLOPE
Natural Bank
SACKED CONCRETE WITH REBAR
OHW
1/2:1 MAX.
BACKFILL
ERODED BANK
CONCRETE OR SCSP CUTOFF WALL

Section

Bank Protection Measures

#13A: Sacked Concrete with Vortex Rock Weirs

Description:

Sacked concrete slope protection (SCSP) consists of burlap bags filled with concrete and placed against channel banks. SCSP requires a concrete or SCSP cutoff wall at the toe of the slope to prevent failure. SCSP does not provide any revegetation potential. However, it offers the opportunity to contour walls such that existing vegetation is avoided (tree wells).

Vortex boulder weirs were designed for use in high bedload streams to maintain sediment transport capacity, maintain low width to depth ratios, and provide habitat. Vortex boulder weirs provide instream cover and deepen feeding areas in riffle habitat, provide a wide range of velocities for salmonid holding water at high flows, act as grade control structures without upstream lateral migration, bank erosion, or aggradation, and maintain a low width/depth ratio to reduce sediment deposition[1]. Weirs are built on the downstream end of bank repair to help maintain profile.

Design Criteria:

Appropriate for slopes up to 1/2 to 1.

Appropriate for velocities up to 15 feet per second.

Vortex weirs are most appropriate in "F" and "B" type channels, according to Rosgen's stream classification system[1].

Habitat Impact Assessment:

In-stream:	Reduces or eliminates biotic potential
Stream-side:	Reduces or eliminates biotic potential

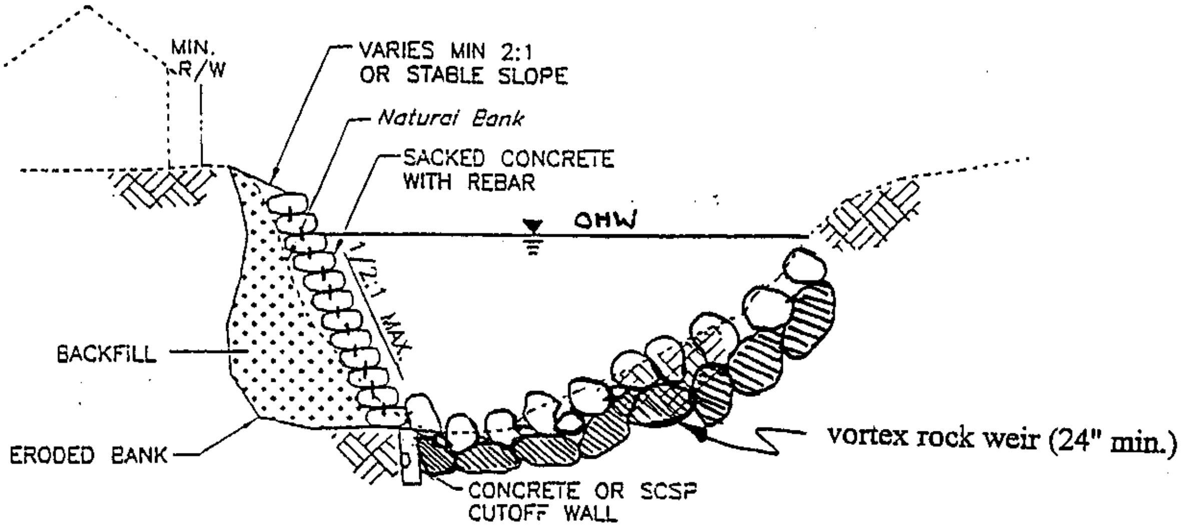
See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

---

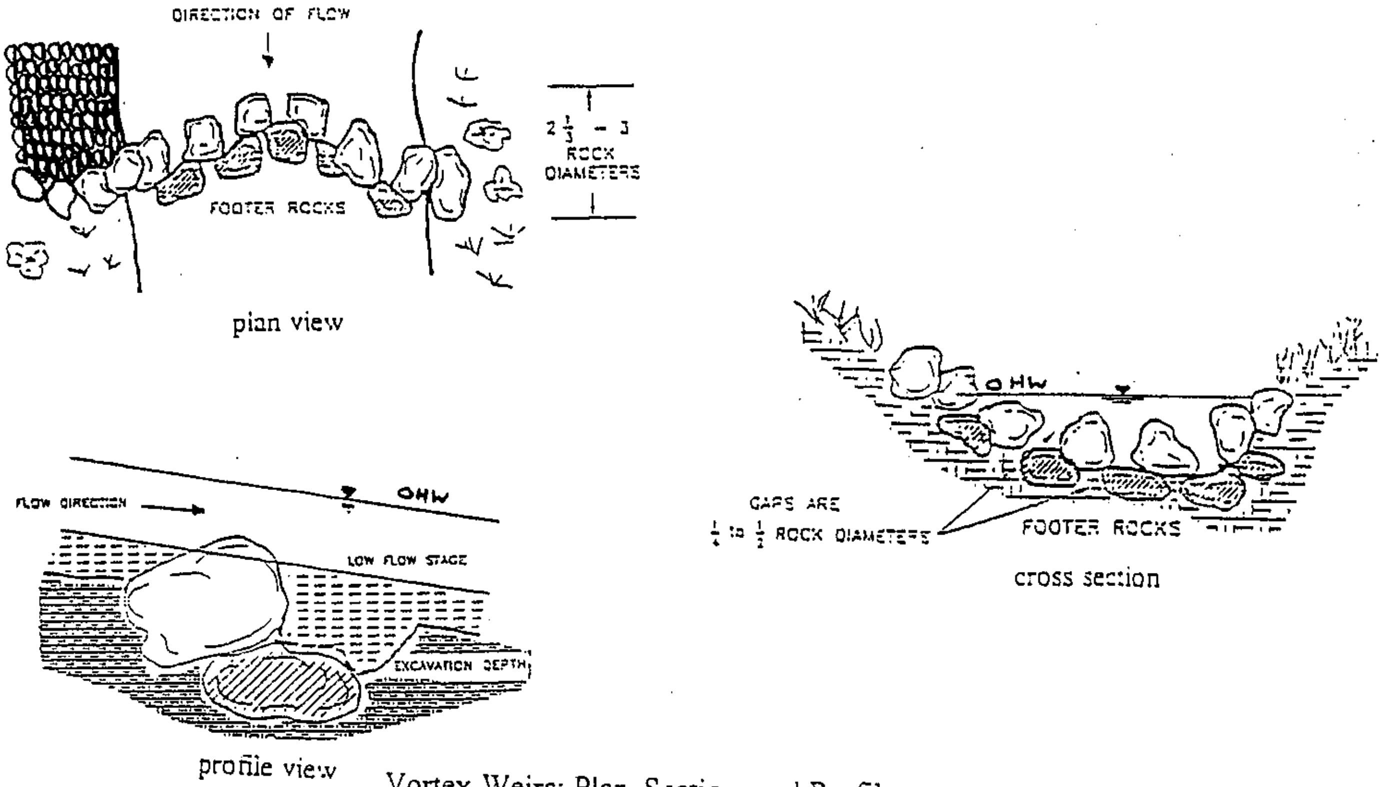
[1] Source: California Department of Fish and Game, California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#13A: Sacked Concrete with Vortex Rock Weirs


MIN. R/W
VARIES MIN 2:1 OR STABLE SLOPE
Natural Bank
SACKED CONCRETE WITH REBAR
OHW
1/2:1 MAX.
BACKFILL
ERODED BANK
vortex rock weir (24" min.)
CONCRETE OR SCSP CUTOFF WALL

Section



plan view

cross section

profile view

Vortex Weirs: Plan, Section, and Profile

Source: California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual

Bank Protection Measures

#14: Gunite Slope Protection

Description:

Gunite slope protection consists of a concrete mixture sprayed under presssure over an eroded bank. Reinforcing steel may be placed against the bank prior to spraying.

Design Criteria:

Appropriate for slopes up to vertical.

Appropriate for velocities up to 15 feet per second.

Habitat Impact Assessment:

In-stream:	Reduces or eliminates biotic potential
Stream-side:	Reduces or eliminates biotic potential

See SMP, Appendix E, Bank Protection Assessment Matrix for assessment details.

Santa Clara Valley Water District

FINAL EIR

SMP APPENDIX G
Best Management Practices List

August 21, 2001

APPENDIX G
IMPLEMENTATION OF BEST MANAGEMENT PRACTICES UNDER THE STREAM MAINTENANCE PROGRAM

Introduction

The District will process all routine stream maintenance activities according to the process and protocols established in Chapter 3 of the Stream Maintenance Program (SMP). The Resource Protection Protocol contained therein includes a step in the annual review process to identify appropriate Best Management Practices (BMPs) for the design and implementation of an activity. (See SMP Figure 3-1.) BMPs are methods that protect environmental quality or reduce environmental impacts from stream maintenance activities. In order to be effective, BMPs must be properly selected and implemented, applied consistently, and their effectiveness evaluated onsite to assure that they are meeting the required objective. The District's Geographic Information System (GIS) will be developed and enhanced to facilitate the stream maintenance project environmental review, processing, and implementation process, particularly for determining potential presence of sensitive species.

Not every BMP is designed to be used in every situation. Since BMPs are meant to be specific to particular activities and resources, the selection and implementation of an appropriate set of BMPs for each project is a key element to their effectiveness. Because of variation in District facilities and the tendency of individual site conditions to change over time, conditions under which each BMP must be applied cannot be strictly prescribed. The staff involved in design and implementation of the maintenance activity must retain some flexibility to determine which BMPs should be implemented according to design objectives and site conditions.

Selection, implementation, monitoring, and improvement of BMPs are all part of the program. Following is a brief discussion of how each of these activities will be applied under the Stream Maintenance Program to assure that resource protection goals are met.

Selection of Best Management Practices

The District will use the most current BMPs when planning or designing routine stream maintenance activities. Work within the Stream Maintenance Program can be divided into two general categories. Regularly scheduled work (most vegetation management, trash pick-up, etc.) is work that occurs in the same place and the same manner with a predictable frequency. Other routine work is not undertaken on a regular annual schedule, but is done as the need arises. This work (sediment removal, bank protection) has a less predictable frequency and location. This work is identified through field surveys, prioritized, and then a work-plan for that particular job is developed. Selection of BMPs will be managed differently for these two types of work.

Selection of BMPs for regularly scheduled work will be done at the beginning of each season (coincides with activity type). Aquatic herbicide application, for example occurs in late summer/early fall. At the beginning of the season, technical staff will review all of the work areas and select appropriate BMPs to respond to site conditions. The BMPs will be incorporated into the work order. If there are questions regarding specific environmental issues, appropriate staff will be consulted and their input will be incorporated.

For work not on a regular schedule, BMP selection is called out in the Resource Protection Protocol. The watershed engineer will, as part of the project design criteria, select BMPs that are appropriate to the particular job and incorporate them into the design package. The BMPs will be called out in the design documents and incorporated into the work order. If there are questions regarding specific environmental issues, appropriate staff will be consulted and their input will be incorporated.

Implementation of Best Management Practices

Best Management Practices will be implemented by lead staff assigned to a specific project. For most projects this would be the Senior Maintenance Worker. The BMPs will be implemented as they are called out in the work order. If site conditions or other factors require a BMP to be changed or make it no longer relevant to the project, the assigned lead on the job will consult with appropriate staff (watershed engineer, qualified environmental staff, etc.) and get authorization to modify the BMPs. Modifications to BMPs will be noted as an addendum to the work order.

Monitoring of Best Management Practices

Monitoring of BMPs will be carried out as part of the work and assigned to the lead staff on a particular project as a general rule. Exceptions would be where the individual BMP requires a particular field of expertise to carry out the monitoring (i.e. water quality sampling, fisheries monitoring). In that instance, qualified staff would be included in the work order as a resource for BMP implementation.

Changes in Best Management Practices

The Best Management Practices section of the Stream Maintenance Program is intended to be a living document and to change over the life of the program. The annual Resource Protection Protocol in Chapter 3 of the Stream Maintenance Program includes a "lessons learned" step to evaluate and improve all aspects of the maintenance program, including the BMPs. As BMPs are used and ways are seen to improve their effectiveness, they will be modified to reflect the changes. As new BMPs are found or technology improves, the program will incorporate them to further protect resources.

Reporting on Best Management Practices

Reporting on modification to BMPs made as a result of the "lessons learned" process will be done as part of the normal reporting practices called out in the Stream Maintenance Program.

Supporting Documents

The BMPs are supported by other District documents that provide more specificity for maintenance project design and implementation.

These documents are attached to the SMP:

Appendix C. Nesting Migratory Bird Procedure
Appendix D. Dryback/Fish Relocation Protocol
Appendix E. Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities

These documents are available from the District:

District Channel Maintenance Guidelines

Bay Area Stormwater Management Agency Association BMPs (2001)

BMP List

The list of BMPs gives a BMP identification number which is used for reference in the SMP and EIR, followed by a short BMP Title, a summary Description of the measure, and the Activity to which the measure will generally apply. The abbreviation for activity is:

SR	Sediment Removal
VM	Vegetation Management
BP	Bank Protection
MM	Minor Maintenance
All	All Routine Maintenance

1. Water Quality

The District shall implement measures to protect water quality, to reduce short-term increases in turbidity, and to maintain the geomorphic integrity of the channels.

BMP	Title	Description	Activity
1.1	Conduct Work During Low Flow Periods	Work instream shall be performed from the spring to fall months when low to no flows are present in the channels. For minor work activities that will occur in the channel, work will be conducted from the top of the bank if access is available and there are flows in the channel.	All
1.2	Tidal Work Areas	For tidal areas, a downstream cofferdam is constructed to prevent the work area from being inundated by tidal flows. By isolating the work area from tidal flows, water quality impacts are minimized. Downstream flows continue through the work area and through pipes within the cofferdam. 1. Installation of coffer dams will begin at low tide. 2. If work can be completed or staged when the work area is not under water, coffer dams will not be necessary. 3. Coffer dams in tidal areas can be made from earthen material. If earth is used, the downstream and upstream faces shall be covered by a protected covering (e.g., plastic or fabric) if needed to minimize erosion.	SR
1.3	Dewater/ Bypass Water at Non-tidal Sites	If water is present at the work site, diversion structures (which can be made of ~~various materials~~ sheet piles, inflatable dams, sand bags, river run gravel, or other similar materials) shall be constructed, as needed, to isolate the work area and avoid or minimize downstream water quality impact. Depending on the channel configuration, water is allowed to either continue flowing downstream or is diverted around the work site in a pipe (pumped or gravity) or open channel. 1. All water shall be discharged in a non-erosive manner (e.g., gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices, etc.). 2. Sumps or basins may also be used to collect water, where appropriate (e.g., in channels with low flows). 3. Where feasible and appropriate, diversion structures shall be installed on concrete sections of the channels or constructed of materials other than imported earthen fill. ~~If earth is used, the downstream and upstream faces shall be covered by a protected covering (e.g., plastic or fabric) if needed to minimize erosion.~~ Earth fill cannot be used for cofferdams in non-tidal areas. 4. In conjunction with diversion structures, pumps or gravity-fed pipe systems are used to de-water sites. 5. Depending on the channel configuration, sediment removal may occur within a "live" stream–a stream where the flows are not bypassed around the work site; however, during excavation activities, a berm of sediment is left between the work area and stream flows to minimize water quality impacts. 6. In non-tidal channels with anadromous fisheries, diversions shall maintain habitat connectivity and result in no changes in flow quality or quantity from pre-project conditions.	SR BP

BMP	Title	Description	Activity
1.4	Avoid Erosion When Restoring Flows	All temporary diversion structures shall be removed within 48 hours of completion of work. Flows shall be restored in a manner that minimizes erosion. 1. When diversion structures are removed, to the extent practicable, the ponded flows will be directed into the low-flow channel within the work site to minimize downstream water quality impacts. 2. Flows shall gradually be restored to the channel to avoid a surge of water that would cause erosion or scouring. 3. Bypassed flows can be slowly reintroduced into the dewatered area by leaving a silt barrier in place to allow water to slow and drop sediment to the extent possible.	SR BP
1.5	Erosion and Sediment Control Measures	Erosion control methods shall be used as appropriate during all phases of routine maintenance projects ~~the construction phase~~ to control sediment and minimize water quality impacts. The District shall prevent erosion on steep slopes by using erosion control material according to manufacturer's specifications. Appropriate measures include, but are not limited to, the following: 1. Silt Fences 2. Straw Bale Barriers 3. Brush or Rock Filters 4. Storm Drain Inlet Protection 5. Sediment Traps 6. Sediment Basins 7. Erosion Control Blankets and Mats 8. Soil Stabilization i.e.: Tackified straw with seed, jute or geotextile blankets, etc. The following Bay Area Stormwater Management Agency Association BMPs provide guidance and specifications as to implementation of the erosion control measures described: SC-3. Sediment Basins SC-4. Straw or Sand Bag Barriers SC-5. Sediment Traps SC-6. Silt Fences SS-1. Erosion Control Blankets, Mats, and Geotextiles VR-1. Brush or Rock Filters VR-2. Check Dams VR-4b. Temporary Outlet Protection VR-4b. Storm Drain Inlet Protection WD-1. Earth Dike WD-1. Slope Drain WD-3. Temporary Drains and Swales	BP
1.6	Use of Wheel and Track Mounted Vehicles in Stream Bottoms	District personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation: 1. Tracked vehicles (bulldozers, loaders) may cause scarification. 2. Wheeled vehicles may cause compaction.	SR BP

BMP	Title	Description	Activity
1.7	Pump/ Generator Set Operations and Maintenance	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators shall be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions. 2. Pumps shall be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes shall be screened to prevent uptake of fish and other vertebrates.	SR BP MM
1.8	Handle Sediments So As to Minimize Water Quality Impacts	Sediments shall be stored and transported in a manner that minimizes water quality impacts. 1. Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal. This measure applies to saturated, not damp, sediments and depends upon the availability of a stockpile site. 2. ~~Temporary stockpiles will be isolated.~~ For those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the creek or into local storm drains that enter the creek, unless water quality protection measures recommended by the RWQCB are implemented. 3. Trucks may be lined with an impervious material (e.g., plastic), or the tail gate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out. 4. Water shall not drain directly into channels (outside of the work area) or onto city streets without providing water quality control measures. 5. Streets shall be cleaned of mud and/or dirt by street sweeping, as necessary, and not by hosing down the street.	SR
1.9	Soil Stockpiles	If soil is to be stockpiled, no run-off will be allowed to flow back to creek.	SR

BMP	Title	Description	Activity
1.10	Avoid Exposing Soils with High Mercury Levels	Bank Protection projects in portions of the Guadalupe River watershed affected by historical mercury mining may expose soils containing mercury which can affect stream water quality. 1. In the specified channel reaches in the Guadalupe River Basin, soils that are likely to be disturbed or excavated shall be tested for Mercury (Hg). Soils shall be remediated if: a. disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or b. disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg. 2. Remediation can be accomplished either by: a. treating the site so that contaminated soils excavated for the purpose of installing bank protection will not be susceptible to erosion, or b. by further excavating contaminated soils and replacing them with clean fill or other bank protection materials that are free *from contaminants.* c. Soils with mercury concentrations exceeding 20 mg/kg will be removed and disposed of in a Class I landfill following established work practices and hazard control measures. 3. To ensure worker safety is protected during bank protection projects with elevated mercury concentrations in the exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the Occupational Safety and health Agency (OSHA).	BP
1.11	Concrete Use Near Waterways	Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality. 1. ~~Use plastic sheeting or otherwise isolate concrete that is used in channels for 2 weeks to one month to allow time for curing.~~ Wet sacked concrete shall be excluded from the wetted channel for a period of two weeks after installation. During that time, the wet sacked concrete shall be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete shall not be allowed to enter a live stream. 2. ~~Designate an area outside of the channel and floodplain to clean out concrete transit vehicles.~~ Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time, the poured concrete shall be kept moist, and runoff from the wet concrete shall not be allowed to enter a live stream. *Commercial sealants (e.g., Deep Seal,* Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water shall be excluded from the site until the sealant is dry. 3. Dry sacked concrete shall not be used where they will have contact with the wetted channel. 4. Designate an area outside of the channel and floodplain to clean out concrete transit vehicles.	BP

BMP	Title	Description	Activity
1.12	Groundwater Management	If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek. Water pumped into vegetated areas will be pumped in a manner that will not create erosion around vegetation.	SR BP
1.13	Prevent Scour Downstream of Sediment Removal	Sites in the transport zone on alluvial fans may cause increased scour downstream if they experience rapid sediment accumulation after sediment removal. Channel reaches up to 500 feet downstream from such sediment removal sites will be monitored to determine whether accelerated erosion is occurring. If downstream monitoring indicates that erosion is occurring, then remedial action such as rock vortex weirs or similar protection shall be carried out.	SR
1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	Where sediment has accumulated due to vegetation in-channel, herbicide application may result in release of sediment downstream. Prior to herbicide application within active channels, the potential for significant sediment release will be assessed. If the site has the potential for significant sediment release, then one of two techniques will be considered: 1. Where an area has not been routinely treated with herbicides, phase new herbicide applications over several seasons, or 2. Remove the excess sediment through mechanical means after the vegetation is killed.	VM
1.15	Prevent Erosion Downstream of Bank Protection Sites	Increased water velocity at bank protection sites may increase erosion downstream. Bank stabilization site design will assess hydraulic effects immediately upstream and downstream of the work area. If the hardscape revetment would cause significant increase in erosion potential, downstream energy dissipation features such as pools or grade control structures shall be considered in the design. If the evaluation identifies possible downstream impacts, proactive protection of these areas shall be provided. Such measures include, but are not limited to, coir logs, riparian enhancement planting, strategic placement of rock, and flow deflectors.	BP
1.16	Minimize Local Erosion Increase from In-channel Vegetation Removal	In-channel vegetation removal may result in increased local erosion due to increased flow velocity. To minimize the effect, protect the toe of the bank by leaving vegetation to the maximum extent possible consistent with the maintenance guidelines.	VM

2. Vegetation

The District shall strive to minimize vegetation removal and shall revegetate sites as appropriate to provide erosion control and restore riparian habitat value.

BMP	Title	Description	Activity
2.1	Minimize Vegetation Removal	Vegetation control and removal in channels, on streambanks, and along levees and maintenance roads shall be limited to removal necessary for facility inspection purposes, removal that is necessary to meet regulatory requirements, removal that is required to comply with fire codes, and removal that is required to meet capacity requirements per Maintenance Guidelines. 1. The District has developed detailed Maintenance Guidelines to address the ongoing need for maintenance of vegetation or sediment in modified streams and channels. The guidelines are engineering-based and outline the level of maintenance required to ensure adequate flood ~~control~~ protection capacity is maintained in the streams and canals within the District's jurisdiction. 2. Decisions regarding the necessity of routine sediment removal and vegetation management activities (to restore channel flow capacities) will be made following the thresholds established in the guidelines. This information will be used to formulate in part an annual routine maintenance work plan. 3. No more than one-quarter acre of wetland or riparian vegetation will be removed during minor work activities.	~~All~~ All All MM
2.2	Minimize Stream Access Impacts	District personnel shall use existing access ramps and roads where possible. If new access points are necessary, they shall be constructed in a manner that minimizes impacts to streams: 1. New access points shall be created as close to the work area as possible to minimize running equipment down stream channels. 2. On temporary access points, remaining disturbed soil shall be compacted and seeded immediately after construction of new access points. 3. New access points will be constructed so as to minimize adverse impacts, such as tree removal, whenever possible. 4. If the access point is to be permanent, the road or ramp will have a gravel surface. 5. Any temporary fill used for access shall be removed upon completion of the project. Channel topography and geometry shall be restored to pre-project conditions to the extent possible.	SR BP

BMP	Title	Description	Activity
2.3	Minimize Hardscape in Bank Protection Design	The District shall select bank repair techniques appropriate to a given site based on hydraulic and other site conditions. Refer to SMP Appendix E. Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities . 1. Biotechnical repair methods include live construction, willow wattling, erosion control blankets, brush matting, and installation of root wads and boulders in banks. 2. The repair will be designed and installed so that it will be self-sustaining and use vegetation that adds structural integrity to the stream bank.	BP
2.4		*[This BMP intentionally left blank for any future additions.]*	
2.5	Planting	Planting for erosion control and habitat restoration shall be in accordance with District revegetation guidelines.	BP
2.6	Mulching	Bark and other wood products shall be used as needed to prevent erosion of bare soil after construction is completed. 1. All newly planted and/or bare soil (excluding bare channel bottoms) in maintenance areas shall have a minimum 3" thick layer of bark or mulch installed except when the area is seeded. In that case, the thickness of the mulch layer shall not exceed ½ inch. 2. This bark or mulch can be ground-up woody products and/or leaves from either native material or from soil suppliers. 3. No non-native material that has allelopathic compounds (*Eucalyptus* spp.) or weed seeds shall be used as mulch in areas where it has the potential to inhibit native revegetation. Such areas would include floodplains and revegetation sites. 4. Any material imported from outside the District that is to be used as mulch will be certified as weed-free to the extent that certification is possible.	BP
2.7	Seeding	For banks that are scraped during sediment removal, an erosion control seed mix will be used. 1. A typical mix may consist of California native grasses (e.g., *Hordeum brachyantherum, Elymus glaucus* 'Berkeley,' *Bromus carinatus*) on slopes flatter than 3:1. *Vulpia microstachyes* may be added to the mix where slopes are steeper (e.g., 2:1). 2. Another seed mix may be of 'Escort' sterile wheat to provide a year's worth of protection. This mix is used only if further work is required the following year. 3. Temporary earthen access roads will be seeded when site and horticultural conditions are suitable.	SR

BMP	Title	Description	Activity
2.8	Replace ~~Heritage~~ Trees	The District shall replace ~~all heritage-sized~~ trees as follows: ~~(greater than 18 inches dbh) that are removed.~~ 1. Native trees between 6 and 18 inches in diameter at breast height (dbh) that are lost due to bank protection impacts will be replaced at a ratio of 3:1. Non-native trees between 6 and 18 inches dbh will be replaced at a ratio of 1:1 with appropriate native species. ~~Trees shall be replaced at a ratio of 4 replacement trees for each tree removed. Trees native to the site shall be replaced with individuals of the same species. Trees not native to the site shall be replaced by appropriate native species.~~ 2. Trees removed for installation of bank protection measures shall be replaced at the site, if feasible, or at the mitigation site created for that bank protection activity. ~~Trees removed for other routine maintenance activities shall be replaced on-site or as close as feasible.~~ 3. The Plant Selection Criteria, Planting Techniques, Maintenance, and Monitoring/Reporting protocols prescribed by the "Protocol for Revegetation Associated with Bank Protection" (Appendix E of SMP ~~Attachment~~) shall be implemented, as applicable to tree replacement. 4. Replacement of heritage-sized trees (greater than 18 inches dbh) will be consistent with local ordinances.	BP
2.9	Revegetation Site Maintenance	Follow-up maintenance shall be performed on sites that have been seeded and planted. 1. Maintenance shall include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water. 2. Irrigation shall be implemented as needed throughout the establishment period.	BP

3. Wildlife and Fisheries
The District shall implement measures to minimize impacts to native species, especially special-status and riparian dependant species.

BMP	Title	Description	Activity
3.1	Minimize Impacts to Special-status Plants and Animals Via Site Assessments and Avoidance Measures	To avoid and minimize impacts to special-status plant and wildlife species, the annual work program shall be reviewed, and each site where special status species have been found, have been known to exist in the recent past, or are likely to occur because suitable habit5at exists, will be visited by a biologist or qualified personnel under the direction of a biologist. For animal species the site surveys will be no more than 30 days prior to the start of construction to determine presence of special-status species. For plant species the surveys will be conducted eduring the appropriate time of the year to determine presence. Information regarding the presence of special-status species on a particular worksite shall be based on the District's GIS database and professional experience of qualified staff. 1. The District shall use its GIS database to identify potential special-status plant and animal habitats. All projects falling within sensitive habitats will be discussed with biological staff to identify avoidance and minimization measures. 2. All populations detected during the surveys will be assessed and mapped. This information will be entered into the District's GIS system for future management purpose. 3. If maintenance activities are scheduled in the vicinity of extant populations, qualified personnel under the direction of a biologist will clearly identify the populations on site and stake or flag a buffer zone around the population in which activities are to be avoided. 4. Avoidance of impacts to serpentine areas or other sensitive plant habitats may include storing removed sediment offsite, limiting the method of vegetation removal to manual methods, and limiting the operation of maintenance equipment to established roads whenever possible. 5. Vegetation management in sensitive plant areas will use only hand control or backpack herbicide application by operators trained to identify and avoid the species to be protected. 6. If sensitive animals such as western pond turtles or California red-legged frogs are found, a qualified biologist will remove them to suitable habitat outside of the project limits. Moving animals will be consistent with applicable Fish and Wildlife Service and Fish and Game permits. 7. The results of all sensitive species surveys will be reported to the Fish and Wildlife Service, National Marine Fisheries Service and the California Department of Fish and Game in an annual report. All surveys will be reported to the CNDDB. 8. The District will develop and distribute informational pamphlets entitled "Sensitive Plants, Wildlife, and Fish at your Worksite." These pamphlets are designed to inform staff about sensitive species and environmental protocols and procedures.	All

BMP	Title	Description	Activity
3.2	Minimize Impacts to ~~Breeding~~ Nesting Birds Via Site Assessments and Avoidance Measures	District personnel shall conduct SMP work in a manner consistent with the protocols established by the most current version of the District's Nesting Migratory Bird Procedure: 1. Project areas will be checked by qualified personnel under the direction of biologists for nesting birds prior to starting work if the work has the potential to impact ~~breeding~~ nesting birds. 2. If nesting birds are found, implementation of a project may be delayed until after nesting is completed. Work may occur if an adequate buffer, as determined by a qualified biologist, can be established between the maintenance activity and nests.	All
3.3	Avoid serpentine habitat	The District shall identify serpentine areas and avoid disturbance to these areas to the extent possible. 1. The District shall use its GIS database to identify serpentine areas near work areas and avoid and minimize impacts to all stands of native vegetation that may provide suitable habitat for special-status plants and invertebrates to the greatest extent possible. 2. Avoidance measures may include storing removed sediment offsite, limiting the amount of vegetation to be sprayed and removed in serpentine areas, and limiting the operation of maintenance equipment to established roads whenever possible.	All
3.4	Mitten Crab Control Measures	Sediment from the San Francisco Bay Watershed, including that for reuse, will not be removed to areas any farther south than Coyote Valley or outside of the San Francisco Bay watershed unless previously authorized by CDFG. This measure is to avoid transporting mitten crabs, a highly invasive, exotic species, to areas where they are not currently found.	SR
3.5	Minimize Loss of Aquatic Habitat from Bank Protection Work	Follow SMP Appendix E. Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities.	BP

BMP	Title	Description	Activity
3.6	Remove Sediment from One Side of Large Channels in Alternate Years	Some channels are large in the sense that sediment removal operations must be conducted from both sides of the channel. Remove sediment in large channels from one side only in alternate years to minimize vegetation removal and retain emergent vegetation, which is used for food, cover, fish spawning and nursery areas, and wildlife movement corridors. According to the Maintenance Guidelines, this measure applies to the following channel reaches (Station Nos.): 1. Stevens Ck. (0+00–146+00) 2. Calabazas Ck. (0+00–102+00) 3. San Tomas Ck. (0+00–151+40) 4. Alamitos Ck. (42+65–218+00) 5. Guadalupe River (230+00–387+50) 6. Berryessa Ck. (0+00–200+00) 7. Lower Penitencia (0+00–40+00) 8. Silver Ck. (100+00–315+40) 9. Thompson Ck. (0+00–48+00)	SR
3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	If fisheries or native aquatic vertebrate are present when cofferdams, water bypass structures, and silt barriers are to be installed, a fish and native aquatic vertebrate relocation plan will be implemented to ensure that fish and native aquatic vertebrates are not stranded: 1. In non-tidal channels, where water is to be diverted, prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates will be captured in the work area and transferred to another reach as determined by a qualified biologist (refer to Fish Relocation Guidelines) 2. Aquatic invertebrates will not be transferred (other than incidental catches) because of their anticipated abundance and colonization after completion of the repair work.	SR BP
3.8	Minimize Effects of Bypass Structures on Steelhead	To prevent increases in temperature and decreases in dissolved oxygen (DO), if bypass pipes are used, they shall be properly sized (i.e., larger diameter pipes to better pass the flows). Bypass pipes may also be avoided by creating a low-flow channel or using other methods to isolate the work area.	SR BP
3.9	Retain Woody Materials and Vegetation	Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure or impedes reasonable access. 1. Retain and flag stumps, snags, and branches in channels that can create fish habitat. 2. Ensure that this woody debris does not impede water flow and does not contribute to erosion. 3. When woody material is removed, priority will be given to reuse of the materials in bank protection projects. Non-native species containing allelopathic compounds will not be used for construction of bank protection projects. Woody materials may also be used as mulch. (See BMP 2.6) 4. When retention will not compromise flood management system reliability, woody vegetation shall be left in place.	BP MM

BMP	Title	Description	Activity
3.10	Conduct In-Channel Work During the Dry Season	Avoid and minimize impacts to ~~steelhead~~ salmonids by timing stream maintenance projects in streams where there are or could be ~~steelhead~~ salmonids so that the use of heavy equipment in the channel is conducted outside of the migration and spawning season. 1. Avoid use of heavy equipment during ~~steelhead~~ salmonid migration and spawning season ~~is generally~~ between ~~December 15~~ October 15 to ~~June 30~~ June 15. 2. In-stream work in streams in salmonid streams may be extended after October 15th under the following conditions: • There has been no significant rainfall. • A request for an extension has been submitted to California Department of Fish and Game in writing by October 1st. • The project or projects for which extensions are being requested are at least 50% complete or can be completed within 5 business days. • National Marine Fisheries Service and California Department of Fish and Game review the request and concur that an extension would not pose an undue threat to resources. • No work under these conditions may occur after October 30th. 3. Minor maintenance activities that have no impact on fisheries may be done on all streams at any time of the year. These activities include fence repair, graffiti removal, tree pruning outside the low flow channel, revegetation maintenance, rodent control, and other activities that do not occur in the water. 4. In streams where there are or could be salmonids, minor activities will be done in channel if the activity is necessary to provide immediate flood protection. These activities include removal of trash or debris that will impede flows, trash rack cleaning, and pier nose cleaning. These activities will be done in a manner that is sensitive to protection of fisheries resources.	SR BP
3.11	Avoid Dewatering an Entire Isolated Stream Reach	Construction sites may be isolated by upstream or downstream barriers, such as culverts. In reaches that contain deep pools, the District shall maintain these pools as refuges by constructing temporary barriers so as to avoid pool destruction when preservation of the pool is not in the construction footprint or a barrier to project access. This BMP does not apply to sediment removal activities that require the removal of all sediment to restore the design capacity.	SR BP

BMP	Title	Description	Activity
3.12	Maintain Low-flow Fish Passage	If site conditions after work create a flat channel bottom in non-tidal channels, a low flow channel will be created before reintroduction of flows to allow fish passage. The goal is to avoid sheet flow only a few inches deep. This measure does not apply to tidal areas ~~or to non-tidal streams with no fish value as designated on the District GIS Fisheries coverage~~.	SR BP
3.13	Remove Temporary Fills as Appropriate	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work, except where clean river run cobble/gravel was used. When appropriate, some or all of such material may be left in the channel to provide a substrate for aquatic species.	SR BP
3.14	Maintain or Provide Escape Cover	Stable undercut banks (generally those maintained by roots or boulders) shall remain in place. Larger boulders (≥2-foot diameter) with minimum 4-12" gaps used for rip-rap may provide cavities as escape cover that are not provided by sacked concrete, small rip-rap, or larger rip-rap with small rock in-fill.	BP
3.15	Restore ~~Riffle and~~ Pool Configuration of Channel Bottom	The District shall re-grade the channel bottom at the end of the work project to as close to original conditions as possible. 1. In areas used for migration by salmonids as designated on the District GIS Fisheries coverage, the depth and size of the low flow channel and pools shall emulate the pre-construction conditions as closely as possible, within the finished channel topography. 2. ~~In areas potentially used for spawning by salmonids as designated on the District GIS Fisheries coverage, spawning riffles impacted by channel maintenance activities will be re-created by placement of a suitably sized gravel-cobble mixture in a configuration that equals or exceeds the pre-project available area (see also BMP 3.16).~~ All material used to construct temporary fills will be removed upon completion of the project.	SR bp
3.16	Restore Spawning Gravels in Work Site Areas	The District shall replace gravels at the end of construction in potential salmonid spawning reaches. 1. Spawning gravels removed as a result of stream maintenance activities in active spawning locations will be replaced ~~in kind and~~ in place using a gravel-cobble mixture with ~~size distribution and other parameters specified by District fisheries staff~~ the following specification: the cobble/gravel material shall be made up of 30% 8-inch cobble, 30% 4-inch cobble, 30% 2-inch gravel, 10% ½-inch gravel, and no fines. 2. Spawning gravel ~~placement~~ replacement will be configured to maximize functional benefits including salmonid spawning, aquatic invertebrate production, and juvenile escape cover.	SR BP

BMP	Title	Description	Activity
3.17	Reuse Sediments and Gravels As Appropriate	Where practical, the District will reuse removed sediments and gravels. 1. Sediments that are considered for re-use will be tested for hazardous materials and graded for structure as necessary in order to determine their appropriateness for re-use. When sediments or gravels are reused, the District will ensure that the reuse does not cause any additional erosion, siltation, or other negative environmental consequences. Reuse will be considered within the context of environmental, regulatory, and fiscal consequences. 2. Re-use will be considered within the context of environmental, regulatory, and fiscal consequences. ~~In supplementing spawning gravels, imported gravels must be of the appropriate size to be beneficial as specified by District fisheries staff.~~	SR
3.18	Herbicide *Use in* Aquatic Areas	Only herbicides and surfactants registered for aquatic use will be *applied within the banks of channels within 20 feet of any water* present. Aquatic herbicide use is limited to July 1st through October 15th, except on Guadalupe River, where it is limited to July 1st to August 15th. If rain is forecast within 24 hours, then application of aquatic herbicide will be rescheduled.	VM

BMP	Title	Description	Activity
3.19	Develop a Biodiversity Monitoring Program	The District commits to developing and implementing a biodiversity monitoring program in conjunction with SMP. The focus of the program will be on special-status species and their habitats. Monitoring results will be incorporated into future BMP and maintenance design through the "lessons learned" process of annual review (refer to SMP Figure 3-1) so as to more effectively conserve and restore stream habitats. 1. Monitoring protocols for listed species will be approved by the Fish and Wildlife Service, National Marine Fisheries Service or California Department of Fish and Game as appropriate. 2. The results of all sensitive species monitoring will be reported to the Fish and Wildlife Service and the California Department of Fish and Game in an annual report. All surveys will be reported to the CNDDB. 3. Monitoring will be conducted during the appropriate time of year for each species under investigation. 4. All populations detected during the monitoring will be assessed and mapped. This information will be entered annually into the District's GIS system for future management purposes. 5. Sensitive species monitoring and baseline surveys may include activities such as: California red-legged frog surveys and western pond turtle trapping covering at least 20 miles of stream per year (repeat surveys every 5 years); survey at least 2 miles of California Clapper Rail habitat per5 year for 5 years; map the distribution of pickleweed and cordgrass within and adjacent to District facilities every 5 years; survey at least 10 miles of creek annually for raptor nest locations; survey known burrowing owl locations on Duistrict facilities annually; survey at least 10 miles of creek annually for western leatherwood (repeat every 5 years); monitor distribution of Bay checkerspot and Opler's longhorn moth habitat on District facilities every 3 years; monitor at least 2 miles of freshwater and tidal emergent marsh for sensitive bird use annually (repeat every 5 years); monitor at least 5 miles of riparian habitat annually for sensitive birds (yellow warbler) (repeat every 5 years); survey serpentine habitats for sensitive plants at least every 3 years. 6. Update the figure "Fisheries present in streams within jurisdiction of the Santa Clara Valley Water District" (Figure IVB1) every 5 years.	All

BMP	Title	Description	Activity
3.20	Minimize Adverse Effects of Herbicides on Non-target Species	Herbicides are a key component of vegetation management under the SMP. Herbicides shall be used in a manner that minimizes negative environmental effects by avoiding impacts to non-target species. Herbicide use will be guided by label restrictions and any advisories published by the California Department of Pesticide Regulation (CDPR) or the County Agricultural Commission. The US EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* provides additional guidelines for herbicide use (US EPA 2000). 1. Herbicide use will be reviewed annually prior to application using information from CDPR and US EPA maintained in the District GIS database to determine the potential presence of special-status species that could be adversely affected, and the target areas and chemicals used will be modified as necessary. 2. To avoid toxic effects to all life stages of California Red-legged Frogs (RLF), whenever herbicides are to be used in within 1.25 miles of known RLF locations, the District will refer to both the product label for the material being used and the Endangered Species Database maintained by the California Department of Pesticide Regulation and use the lower of the two recommended rates if there is a difference.	VM

BMP	Title	Description	Activity
3.21	Minimize Rodenticide Impacts on Non-target Species	Burrowing rodents are controlled to minimize damage to levees on streams and canals. Rodent control areas will be reviewed for the potential presence of special-status species and the rodent control methods tailored to minimize non-target species impacts. When chemical control is necessary, the use will be guided by label restrictions and any advisories published by the California Department of Pesticide Regulation (CDPR) or the County Agricultural Commission. The EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* provides additional guidelines for rodenticide use (USEPA 2000). 1. Within the potential range of salt marsh harvest mouse (SMHM) (as designated on the District's GIS), lethal rodent control methods shall not be used ~~unless specifically determined safe for SMHM by a qualified biologist~~. The District defines potential SMHM habitat as all areas north of Highway 237 as shown in Figure IV B11, and will refine this definition as surveys are conducted to eliminate areas that are separated by barren ground by at least 10 yards from any halophytic vegetation. 2. In areas occupied by burrowing owls, fumigants shall not be used unless specifically determined safe by a qualified biologist. a. The location of Burrowing Owls will be identified on the District's GIS system. b. A 1/4 mile buffer zone around burrowing owl locations will be established. c. If necessary alternative methods of rodent control will be determined by a qualified biologist. 3. The rodenticide applicator shall remove carcasses of poisoned animals, when they are found, to minimize secondary toxic effects on raptors or other wildlife. Carcass survey and disposal shall be performed in the treated area beginning on the third day following the initial exposure of toxic baits. Any exposed carcasses shall be disposed of in a manner inaccessible to wildlife. Carcass surveys shall continue for at least 5 days after toxic baiting has ceased and thereafter until no more carcasses are found. Any dead raptors or other wildlife found in the treated area during the carcass surveys shall be turned over to CDFG's pesticide lab for analysis.	MM
3.22	Herbicide Use in Upland Areas	Application of herbicides to upland areas shall not be made within 24 hours of predicted heavy rainfall.	

4. Land Use and Public Safety
The District shall minimize disturbance to the public and ensure public safety.

BMP	Title	Description	Activity
4.1	Notify Local Governments of Scheduled Work	Notify cities and the County of proposed work by submitting the Annual Work Plan to the Public Works Departments and the District's Zone Advisory Committee.	All
4.2	Minimize Disturbances to Surrounding Neighborhoods	The District shall implement maintenance practices that minimize disturbances to neighborhoods surrounding work sites. 1. In general, work shall be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects. 2. Internal combustion engines shall be equipped with adequate mufflers. 3. Excessive idling of vehicles will be prohibited. 4. Levee traffic shall be limited to a speed of 15 miles per hour. 5. Access roads shall be watered as needed to control dust. 6. Dry sediment shall be wetted down or covered as needed to control dust during transport.	All
4.3	Stabilized Construction *Entrance*	The District shall implement measures to minimize soil from being tracked onto streets near work sites: 1. *Methods used to prevent mud from being tracked out of* work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1-3- inch diameter gravel on unsurfaced access roads. 2. Access shall be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the creek bed, creek banks, and the surrounding land uses.	SR BP
4.4	Sanitary/Septic Waste Management	Temporary sanitary facilities shall be located on jobs that last multiple days. All temporary sanitary facilities shall be placed outside of the creek channel and floodplain.	All
4.5	Vehicle and Equipment Cleaning	District vehicles shall be washed only at the approved area in the corporation yard. No washing of vehicles shall occur at job sites.	All
4.6	Work Site Solid Waste Management	District employees and contractors shall clean the work site before leaving by removing all litter and construction related materials. The District's maintenance crews shall be responsible for all debris incurred as a result of construction and for cleaning up dumped material.	All
4.7	Herbicide Use Requirements	All herbicide use shall be consistent with approved product specifications. Applications shall be made by, or under the direct supervision of, State Certified applicators under the direction of a licensed Pest Control Advisor.	VM

BMP	Title	Description	Activity
4.8	Implement Public Safety Measures	The District shall implement public safety measures during maintenance: 1. Construction signs shall be posted at job sites warning the public of construction work and to exercise caution. 2. When necessary, a person shall be provided for traffic control. 3. If needed, a lane shall be blocked off to allow for trucks to pull into and out of the access points. 4. Where work is proposed adjacent to a recreational trail, warning signs shall be posted several feet beyond the limits of work. 5. Fencing, either the orange safety type or chain link, shall be installed above repair sites on bank stabilization projects.	All
4.9	Notify Park Departments of Trail Closures	As part of the Annual Work Plan, The District will notify the park departments of trails that could be subject to closure. The type of work, location and duration of each project that will affect trail closures will be identified.	SR BP VM

5. Air Quality

The District shall implement dust control measures at work sites to protect air quality and minimize effects on adjacent neighborhoods.

BMP	Title	Description	Activity
5.1	BAAQMD Basic Dust Control Measures	The District shall implement BAAQMD Basic Control Measures at maintenance sites less than four acres in size. Current measures stipulated by the BAAQMD CEQA Guidelines include the following: 1. Active maintenance areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. 2. Trucks hauling sediments and other loose material shall be covered or shall maintain at least two feet of freeboard. 3. Tailgates of trucks shall be sealed. 4. Trucks shall be brushed down before leaving the maintenance site. 5. Unpaved access roads and staging areas that are being used for the maintenance activity shall be watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation. 6. Paved maintenance site access roads shall be swept when visible soil material is carried onto the roadway.	SR BP

BMP	Title	Description	Activity
5.2	BAAQMD Enhanced Dust Control Measures	For single maintenance sites greater than four acres, the District shall implement BAAQMD Enhanced Dust Control Measures. These measures include the following: 1. Inactive areas shall be sprayed with soil stabilizer or seeded. 2. Exposed stockpiles shall be watered, enclosed, covered, or sprayed with soil stabilizers. 3. Traffic speeds shall be limited to 15 mph. 4. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways. 5. Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy).	SR BP
5.3	Avoid Stockpiling Potentially Odorous Sediments	Some of the sediment removal sites will have sediment that is rich in organic matter decaying in an anaerobic conditions, which generates assorted malodorous gases, such as reduced sulfur compounds. These sediments shall be handled in a manner that avoids impacting sensitive receptors. 1. The District shall avoid stockpiling potentially odorous sediments within 1000 feet of residential areas or other odor sensitive land uses. 2. Where appropriate, odorous stockpiles shall be disposed of at an appropriate landfill.	SR

6. Hazardous Materials

The District shall implement hazardous materials protocols to protect environmental quality and public safety.

BMP	Title	Description	Activity
6.1	Spill Prevention	The District shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels. 1. District field personnel will be appropriately trained in spill prevention, hazardous material control, and clean-up of accidental spills. 2. No fueling, repair, cleaning, maintenance, or vehicle washing shall be performed in the creek channel or in areas at the top of the channel bank that may flow into the creek channel.	All
6.2	Spill Kit Location	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations). 1. Prior to entering the work site, all field personnel will know the location of spill kits on crew trucks and at other locations within District facilities. 2. All field personnel will be advised of these locations and trained in their appropriate use.	All

BMP	Title	Description	Activity
6.3	Hazardous ~~Waste~~ Materials Management	The District shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from the streams. 1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered. 2. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations shall be conducted in accordance with applicable State and federal regulations. 3. All handling and disposal of sediments shall be performed in accordance with the WDR issued by the RWQCB. The sediment shall ultimately be disposed at a permitted landfill. Any alternative use or disposal will require RWQCB approval.	All
6.4	Vehicle and Equipment Fueling	No fueling shall be done in the stream channel ~~and~~ or immediate floodplain, unless equipment stationed in these locations is not readily relocated i.e., pumps, generators. For stationary equipment that must be fueled on site, containment will be provided in such a manner that any accidental spill of fuel will not be able to enter the water or contaminate sediments that may come in contact with water. Any equipment that is readily moved out of the channel will not be fueled in the channel or immediate floodplain. All fueling done at the job site will provide containment to the degree that any spill will be unable to enter the channel or damage stream vegetation .	All
6.5	Vehicle and Equipment Maintenance	No equipment servicing shall be done in the stream channel ~~and~~ or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated i.e., pumps, generators. 1. Any equipment that can be readily moved out of the channel will not be serviced in the channel or immediate floodplain. 2. Al servicing of equipment done at the job site will provide containment to the degree that any spill will be unable to enter the channel or damage stream vegetation. 3. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in the channel or floodplain. 4. If emergency repairs are required, containment will be provided equivalent to that done for fueling or servicing.	All
6.6	Employee/ Contractor Training	All appropriate District staff and contractors shall receive annual training on Stream Maintenance Program BMPs.	All

7. Cultural Resources **The District will protect cultural resources.**			
BMP	**Title**	**Description**	**Activity**
7.1	Discovery of Cultural Remains or Historic Artifacts	Work in areas where remains or artifacts are found will be restricted or stopped until proper protocols are met. 1. Work at the location of the find will halt immediately within 30 feet of the find. If an archaeologist is not present at the time of the discovery, SCVWD will contact an archaeologist for identification and CEQA evaluation. 2. If the find is not significant, construction can continue. The archaeologist will prepare a brief informal memo/letter that describes and assesses the significance of the resource, including a discussion of the methods used to determine significance for the find. 3. If the find appears significant, the archaeologist will determine if the resource can be avoided and will detail avoidance procedures. 4. If the resource cannot be avoided, the archaeologist will develop within 48 hours an Action Plan to avoid or minimize impacts. The SCVWD field crew will not proceed until the Action Plan is approved by the SCVWD Watershed Manager. 5. The recovery effort will be detailed in a report prepared by the archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository. 6. In the event of discovery of human remains, the field crew supervisor shall take immediate steps to secure and protect such remains. 7. The Santa Clara County Coroner shall be notified and informed of the find and of any efforts made to identify the remains as Native American. If the remains are determined to be from a prehistoric Native American, the medical examiner is responsible for contacting the Native American Heritage Commission (NAHC) within 24 hours of notification. The NAHC then designates and notifies within 24 hours a *Most Likely Descendant* (MLD). The MLD has 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. 8. Preservation in situ is the preferred option, and if the District can do this without incurring potential future disturbance, then the MLD will usually recommend no further action. The remains and artifacts will be documented and the find location carefully backfilled to avoid further disturbance. 9. Human remains or cultural items exposed during maintenance that are subject to further disturbance will be exhumed archaeologically at the discretion of the MLD and reburied with the concurrence of the MLD in a place mutually agreed upon by all parties.	All

BMP	Title	Description	Activity
7.2	Review of Projects with Native Soil	A cultural resources specialist will conduct a review and evaluation of those sites that would involve disturbance / excavation of native soil previously undisturbed by contemporary human activities to determine their potential for affecting significant cultural resources. The evaluation of the potential to disturb cultural resources will be based on an initial review of archival information provided by the California Historical Resources System/Northwest Information Center (CHRIS/NWIC) in regard to the project area based on a 0.25 mile search radius. It is recommended that this initial archival review be completed by a professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination. If necessary, a further archival record search and literature review (including a review of the *Sacred Lands Inventory* of the Native American Heritage Commission); and a field inventory of the project area will be conducted to determine the presence/absence of surface cultural materials associated with either prehistoric or historic occupation. The results along with any mitigation and/or management recommendations would be presented in an appropriate report format and include any necessary maps, figures, and correspondence with interested parties. A summary table indicating appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources; data recovery, etc.) will be developed for each project site reviewed. The management actions will be implemented on site to avoid significant effects to cultural resources.	All

Santa Clara Valley Water District

FINAL EIR

SMP APPENDIX J
Mitigation Monitoring and Reporting Program

August 21, 2001

SANTA CLARA VALLEY WATER DISTRICT
STREAM MAINTENANCE PROGRAM
MITIGATION MONITORING AND REPORTING PROGRAM

(Appendix J of the SMP Document)

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

August 10, 2001

I. INTRODUCTION

The purpose of this Mitigation Monitoring and Reporting Program (MMRP) is to verify implementation of the mitigation measures identified in the Stream Maintenance Program (SMP) in compliance with the California Environmental Quality Act Guidelines §15097.

The Stream Maintenance Program (SMP) is a program for conducting routine stream and canal maintenance within the jurisdiction of the Santa Clara Valley Water District (District). The program is intended to apply to three major activities, sediment removal, vegetation management, and bank protection; and a group of minor activities. See Figure MMRP-1 for the location of projected SMP activities in channels. All figures and tables are attached at the end of this report. The District is a special purpose governmental agency responsible for providing water supply and flood protection for Santa Clara County, California in a cost effective and environmentally responsible manner.

In the year 2001, an Environmental Impact Report (EIR) was prepared evaluating the environmental effects of the SMP (District 2001a). Table MMRP-1 summarizes the potentially significant effects of the SMP and incorporated mitigation measures. The EIR found that potentially significant impacts from SMP activities occurred in the following major categories: removal of wetland and riparian vegetation and associated disruption of wildlife and wildlife habitat including special-status species; disruption of geomorphic stream processes which could result in additional erosion or sedimentation; degradation of water quality; and disruption of cultural resources.

Many of these impacts could be avoided or minimized by the implementation of Best Management Practices (BMPs) when routine maintenance activities are conducted in streams and canals. A compensatory mitigation package is included in the SMP to replace wetland and riparian vegetation and preserve and restore watershed lands. A portion of this compensatory mitigation package is specifically designed to compensate for impacts to special-status species. The bank protection program includes its own mitigation program which will be implemented on a case-by-case basis according to the environmental conditions of and specific design for each site. BMPs, the stream vegetation compensatory mitigation package, and mitigation associated with the bank protection program are described below with references made to more detailed reports or attachments. Chapter 5 of the SMP document (District 2001b) also includes a more detailed description of these mitigation measures.

II. BEST MANAGEMENT PRACTICES

BMPs are methods that protect environmental quality or reduce environmental impacts from stream maintenance activities. BMPs are most often implemented at the time work on an individual routine maintenance activity is conducted in the field, however, they also can be implemented at the time of planning or design. Table MMRP-1 lists the specific BMPs which will be utilized to avoid, minimize or mitigate for potentially significant impacts of the SMP. The BMP code and short title are included in Table MMRP-1. Refer to the comprehensive list of BMPs included in Appendix G of the SMP document for a more lengthy description of each BMP. This appendix also includes a description on how BMPs are selected, monitored, reported and revised.

See the Reporting section below for additional information on the revision of and reporting on BMPs.

III. COMPENSATORY MITIGATION PROGRAM FOR STREAM VEGETATION

The SMP includes compensatory mitigation for impacts to 30 acres of tidal wetlands, 106 acres of freshwater wetlands and 66 acres of riparian vegetation. Table MMRP-2 summarizes the wetland and riparian mitigation program.

The level of temporary, repetitive impacts caused by routine stream maintenance activities and the appropriate level of permanent mitigation were determined by a one-time accounting method described in Chapter IV-B of the EIR. The types of wetland and riparian vegetation impacted are more thoroughly described in Chapter IV-B of the EIR. In general, the stream vegetation has been regularly disturbed by prior maintenance and construction activities and by surrounding urban land uses. Mature riparian trees are not removed. Impacts to riparian vegetation consists of removal of woody saplings which block flood conveyance.

The compensatory mitigation package was designed to compensate for the same or similar functions as those impacted. Guiding principles were established in Chapter 5 of the SMP document with the advice of the stakeholders and regulatory agencies to assist in development of the mitigation elements. Some of these guiding principles include: mitigation will match impacts by basin; larger, sustainable sites are preferable to smaller, fragmented sites; creation of freshwater and tidal wetlands must be included as part of the mitigation program; and other mitigation techniques such as invasive species control and land preservation are acceptable.

Additional information about each component in the stream vegetation mitigation package is briefly summarized below. Final designs for each mitigation component will be developed and submitted to the regulatory agencies for their review and approval. Detailed design is underway for several of these components, and some have received preliminary review by the regulatory agencies. Maintenance work is spread out over many years, and likewise, mitigation design and implementation will be spread out over a period of approximately 10 years.

A. Tidal Wetland Restoration

The Tidal Wetland Restoration component would establish 30 acres of tidal wetland by restoring Pond A4, a diked salt evaporation pond, to historical tidal marsh conditions. The pond is located along South San Francisco Bay, and bordered by Sunnyvale East and West Channels, and Guadalupe Slough. The restoration site is expected to support tidal wetland similar to or of higher quality than the tidal wetlands impacted by repetitive maintenance activities. The pond is under ownership of the District, and is currently leased to Cargill Salt Division to continue their salt production operations until 2002.

The tidal wetland restoration concept at Pond A4 consists of lowering the outboard levees or breaching them in several strategic locations to provide full tidal action to the site. It is anticipated that a mosaic of mud flat, tidal wetland, and upland habitats will be created. A combination of natural sedimentation processes and placement of dredge fill is proposed to accelerate restoration of wetland function to the site and create beneficial reuse of clean sediment excavated from tidal streams. Modification of Sunnyvale East Channel may be included in the design to improve its hydraulic performance and eliminate the need for future sediment removal and vegetation management for flood protection purposes.

The Pond A4 project will be coordinated with other large-scale tidal marsh restoration projects proposed for South San Francisco Bay. Because of ground subsidence, reuse of clean fill material may be necessary to supplement natural sedimentation in order for wetland features to develop in the short term. Control of perennial peppergrass, an invasive species that has infested brackish and freshwater marshes in the South San Francisco Bay, will be included.

Restoration at Pond A4 will create foraging habitat for black rail and clapper rail to compensate for impacts to these special-status species from SMP activities. Pond A4 is located immediately adjacent to existing areas used by these species.

Planning and design of the Pond A4 tidal restoration are currently underway, and the following milestones are projected: mitigation and monitoring plan for submittal to the resource agencies - May 2005, detailed design - May 2007, and construction - summer 2007. The first phase of restoration on the 300-acre pond will include 30 acres credited as mitigation for the SMP. A mitigation banking instrument and funding strategy will be developed, as well as a monitoring program.

B. Freshwater Wetland Creation

The Freshwater Wetland Creation component would create 14 acres of freshwater wetlands (also known as nontidal wetlands) at Los Capitancillos, Coyote Lakes Park Site 10A, and Church Pond Number 2. These sites are currently either fields of annual grasses or a nonfunctioning percolation pond which would be converted to seasonal or perennial wetlands at locations offstream, but directly adjacent to creeks.

The District will continue searching for additional sites for freshwater wetland creation. If additional sites are found, then the Stream and Watershed Protection component (described below) of the mitigation package will be reduced accordingly.

Although the freshwater wetland creation sites will not be in-stream as the impacted freshwater wetlands, they have an advantage of not being subject to routine disturbance from flood protection maintenance as the impacted sites are. These created wetlands will provide habitat for common local wildlife and wetland-related plants in a streamside setting. Because of their off-stream location, they will rely on water supplied from off-site sources, and will require management of water levels.

1. Los Capitancillos Site

The Los Capitancillos freshwater wetland creation site will consist of approximately 3 acres of off-stream freshwater seasonal or perennial wetlands adjacent to Guadalupe Creek in the Santa Clara Basin. The site, located near Coleman Road and Redmond Avenue in the City of San Jose, is currently an upland field of annual grasses and is owned by the District.

To create suitable conditions for development of a wetland, the site will be excavated. Water will be provided from the Almaden Valley pipeline and water control structures will be constructed to allow for adjustments of water depth and duration of inundation. Native hydrophytic species will be planted.

Preliminary investigations indicate that mercury levels are elevated in surface and shallow-depth soils on the Los Capitancillos site. The elevated levels are well below hazardous materials levels, but exceed wetland creation cover material levels recommended by the California Regional Water Quality Control Board. This situation is being investigated further; however, the likely solution is that soils not suitable for wetland surfaces will be removed from the site and replaced with clean soils.

This site will be developed in coordination with an adjacent project, the restoration of a meander configuration, and shaded riparian aquatic habitat on Guadalupe Creek for fisheries values. The Guadalupe Creek project is not part of the Stream Maintenance Program.

The Los Capitancillos site is currently under design, and is expected to be installed in the year 2002. The following milestones are projected: detailed design and mitigation and monitoring plan for submittal to the resource agencies - February 2002. A preliminary mitigation and monitoring plan was submitted to the resource agencies in June 1998 (District 1998).

2. *Coyote Lakes Park Site 10A*

The Coyote Lakes Park Site 10A freshwater wetlands creation site will consist of at least 7 acres of near perennial freshwater wetland. The site is located in the City of San Jose in the Santa Clara Basin. The land is owned by Santa Clara County and under the management of County Parks and Recreation Department. In consideration for funding for a County Parks and Recreation bridge, County Parks and Recreation has preliminarily agreed to provide the District with an easement for wetland or riparian creation and mitigation at the Parkway Site. The two agencies expect to complete an agreement on the funding/easement exchange within the next year.

The Coyote Lakes Park site is situated on the northeast bank of Coyote Creek, just upstream of the interchange of Highways 101 and 85. The site is bounded to the northeast by Highway 101, an abandoned gravel pond to the west, and Coyote Creek, a District percolation pond and the Coyote Parkway Lakes concession to the south.

The site currently consists of nonnative annual grassland habitat. The adjacent gravel pond, percolation pond, and Coyote Creek contain open water, emergent wetland, and mixed riparian forest. Preliminary investigations indicate the site has fine-textured soils appropriate for wetland habitat establishment.

On the Coyote Lakes Park site, approximately 7 acres of near perennial freshwater wetland will be created as mitigation credited towards the SMP. The full site will comprise a mosaic of habitat types including open water, emergent wetland and riparian. Emergent marsh species to be planted included California bulrush (*Scirpus californicus*) and common tule (*Scirpus acutus*). Narrow-leaved cattail (*Typha angutifolia*) and broad-leaved cattail (*Typha latifolia*) are expected to establish via natural recruitment.

Minimal grading would be required to create the wetland on this fairly level site. Water would be delivered to the site from the adjacent percolation pond. Preliminary information regarding flows in Coyote Creek and operation of the Coyote Creek percolation pond indicate that sufficient water from the pond would be available to support a wetland on the Parkway Site. Outflow from the site could be either to the gravel pond or Coyote Creek; however, outflows may not occur on a regular basis.

Other alternative design approaches may be evaluated during the project's final design phase. For example, the adjacent abandoned 16-acre gravel pond, located between the Parkway Site and Coyote Creek, could potentially be incorporated into the site design. Under this alternative, soil excavated from the Parkway Site could be used to raise the elevation of a portion of the gravel pond to an elevation appropriate for the establishment of emergent wetland vegetation.

Additional technical investigations, including studies of soils, hydrology, and cultural resources will need to be conducted to determine the detailed design. Although no archeological resources are known to occur at the site, Native American burials were found during deep excavation of a nearby site on Coyote Creek.

Coyote Lakes Park Site 10A is currently under design, and following milestones are projected: preliminary design and engineering report - June 2004, and start of construction August 2005. A mitigation and monitoring plan was submitted to the resource agencies in April 2001 (H.T. Harvey & Associates 2001). This report indicated it may be possible to create an additional 2 acres of freshwater wetland at the Parkway Site.

3. *Church Pond No. 2*

The Church pond freshwater wetland creation site will consist of converting open water at the Church Avenue groundwater recharge ponds into approximately 4 acres of freshwater wetland. Currently, three ponds provide approximately 42 acres of surface area dedicated to groundwater recharge at the intersection of Llagas and Church Avenues in the community of San Martin in the Pajaro River Basin. The property is under the ownership of the District.

The preliminary concept calls for a 4-acre earthen bench to be installed in one pond (No. 2) in a location known to be underlain by relatively impermeable soils. Shallow groundwater investigations of the Church Avenue ponds indicate the low-permeability substrates in Pond No. 2 are likely to have relatively low infiltration rates and not contribute substantially to overall recharge performance. Therefore, converting the primary purpose and management of this pond from groundwater recharge to wetland mitigation is not expected to result in substantial loss of groundwater recharge capability. The remainder of the pond's 15-acre surface area will remain open water used for percolation. Currently, the pond is often left dry.

The project will take advantage of the existing infrastructure, pond configuration, and water management to operate the Church pond system for dual percolation and wetland mitigation purposes. For purposes of creating the wetland area, water will be supplied to the ponds from Llagas Creek and is not expected to require a substantial alteration of recent District reservoir water releases or operations. Under current operation, stored water from upstream reservoirs flows downstream as far as Church ponds during the dry season. The preliminary concept calls for water to be routed to the pond system via an existing intake pipe between Pond No. 1 and Llagas Creek.

It may be necessary to construct a flashboard dam in the creek in order to divert the water. The flashboard dam would be installed and the diversion operated during the summer dry season. The flashboard dam will be designed and operated so as to not obstruct fish passage and not cause bank erosion. This reach of Llagas Creek has limited potential to be a migratory corridor for steelhead trout. If necessary, the water diversion structure will be designed to allow for fish passage throughout the year, by installation of a fish ladder or other means, thus avoiding impacts to migrating steelhead. The cumulative effect of another fish ladder on

Llagas Creek will be considered during design of this project, and alternative means to either divert water from Llagas Creek or to provide fish passage around a water intake structure will be considered. The intake pipe will be screened to prevent diversion of fish into the ponds. Alternative water delivery methods, such as an infiltration gallery, will be explored during the planning phase. The design will create water levels on the bench of an adequate depth for wetland vegetation and will reliably control surface water elevation.

Construction of the Church pond wetland creation project is expected to begin in the summer of 2003. The following milestones are projected: mitigation and monitoring plan for submittal to the resource agencies - February 2003, and detailed design June 2003.

C. Stream and Watershed Protection

The Stream and Watershed Protection component includes the purchase of approximately 820 to 1080 acres of land and conservation easements to preserve, protect, and improve streams and their associated watersheds in the county over the next 10 years. The Stream and Watershed Protection component, along with the Freshwater Wetland Creation component, mitigate for SMP impacts to freshwater wetlands. The District will continue searching for additional sites for freshwater wetland creation as described above. If additional suitable freshwater wetland creation projects are identified, then the Stream and Watershed Protection component of the mitigation package would be reduced by approximately 10 acres for every additional 1 acre of freshwater wetland creation.

The Stream and Watershed Protection Program will provide long-term protection and improvement of unique and valuable local stream resources together with their watersheds, in a largely self-sustaining setting. The primary focus is on streams that are in a fairly undisturbed state and generally good ecological condition. Streams that are currently degraded, but that can be returned to good ecological condition, can also be included in the Program.

The Stream and Watershed Protection Program consists primarily of land acquisition, but also provides for some restoration, rehabilitation and/or management projects (restoration projects). Properties containing streams and their immediate watersheds will be acquired. Restoration projects that would benefit stream resources would be conducted on selected acquisition projects or other qualifying lands, as described in Attachment A.

Of the 92 acres of mitigation credit to be provided by Stream and Watershed Protection, acquisition is projected to provide 82 acres of credit, and restoration projects are projected to provide 10 acres of credit. The relative contributions of these sub-components may be adjusted based on opportunity and resource needs identified as the mitigation program progresses.

Acquisition of these lands will most likely be accomplished by the District's donation of funds to park and open space agencies, land trusts, and other land conservation organizations that will ultimately own title or easement and manage the property. The District's contribution will typically provide partial funding of a larger acquisition, however, in some cases the District may choose to purchase and retain sole ownership or easement. Long-term land use and management conditions will be specified as part any partnership purchase agreement. Land will be monitored periodically to ensure that the terms of acquisition continue to be met.

The District will evaluate each proposed acquisition under a standard set of criteria established to ensure that the mitigation goals are met and mitigation credit is obtained. To qualify for consideration under this Stream Maintenance Program, the land must meet a standard set of core criteria (e.g., the land must include a stream, must be located in a watershed related to District streams, would not otherwise be purchased by the District, and is available from a willing seller). Additional criteria will be used to determine the relative priority for acquisition of available parcels.

Each acquired property will be further evaluated to determine if the stream resources would benefit from restoration or management actions. Examples of the many types of restoration or management actions that could be undertaken to improve stream health include: removal of nonnative riparian plant species and revegetation with native species, repair and rehabilitation of denuded or otherwise degraded stream segments, replacement of in-stream road crossings with more environmentally-sensitive crossings, installation of erosion control measures on roads adjacent to streams (dirt or paved roads run parallel to most sizeable streams in the county), and installation of fencing to limit cattle access to the riparian area.

Of the lands acquired under the Stream and Watershed Protection component, 108 acres will be specifically targeted for protection of riparian and upland habitat associated with a minimum of 2 streams that are known to support California red-legged frog and western pond turtle. All 108 of these acres will occur in Santa Clara County with at least one site in the Santa Cruz Mountains and one site in the Diablo Range.

The Program will be implemented over 10 years. Acquisition will be completed, and restoration projects will be identified in order to meet the interim milestones. The milestones are:

- 1/4 of the mitigation credit obtained by completed acquisition of property and/or identification of approved restoration projects by year 3
- ½ of credit obtained by year 6
- all of credit obtained by year 10

Attachment A contains includes a detailed mitigation and monitoring plan for the Stream and Watershed Protection Program.

D. Control of Giant Reed

The Giant Reed Control component would remove a non-native, invasive plant of riparian areas, giant reed, from 125 acres in the county. This component also includes mapping, revegetation, monitoring, and educational elements. Of the total acres from which giant reed is removed, 66 acres would be credited towards the 66 acres of impacts to riparian vegetation. An additional 59 acres of giant reed control is proposed to compensate for any lag time between maintenance impacts to stream vegetation and implementation of the mitigation components.

Giant reed is a highly invasive non-native species that infests creeks and adjacent habitat throughout Santa Clara County. Giant reed displaces native vegetation thus reducing the quality of riparian habitat. It contributes to localized flooding by blocking channels. Since giant reed displaces open water and native riparian and wetland plant communities of freshwater streams, its control is appropriate compensation for impacts to sapling riparian vegetation caused by channel vegetation management.

The following elements are included in the Giant Reed Control Program:

- Mapping of giant reed in all major streams in Santa Clara County.
- Creation of a GIS data-base to manage information on mapping and control efforts.
- Prioritization of efforts using mapping data and "target streams" concepts.
- Creation of pilot sites as a tool to create and refine an optimum control program. Pilot sites would use various control methods to determine efficacy of individual methods.
- Removal of 125 acres of giant reed from Santa Clara County streams over a period of ten years. This effort would consist of removal and disposal of bio-mass and initial treatment with an appropriate herbicide.
- Follow-up herbicide treatments for a period of 3-4 years to assure completes control of sites where giant reed has been removed.
- Revegetation of qualified areas where natural recruitment of native species is unlikely to occur and channel constraints do not preclude dense vegetation. A qualified area is defined as an area where terrestrial riparian vegetation would likely be found in an undisturbed system.
- Creation of an outreach program designed to educate landowners and the general public about invasive species in general and about giant reed specifically.
- Participation in county-wide and regional control efforts of giant reed and other invasive species.
- Monitoring and reporting on success criteria attached to the various sub-components of the Giant Reed Control Program.

The location of giant reed removal will be identified in the first few years of the program as a result of the mapping and prioritization elements described above. Initial control will consist of removal of biomass, appropriate disposal of biomass, and treatment of clumps with an approved herbicide. Typical herbicide control would consist of applying glyphosate (primarily in an aquatic formulation) in a concentrated form to freshly cut stumps. In areas with significant remaining riparian vegetation, natural re-colonization of the treated site is expected after persistent control of giant reed clumps. Revegetation with site-appropriate native species will be implemented in areas where natural revegetation does not occur or is unlikely to occur due to the absence of adjacent parent stock. The goal of revegetation is to have 40% native cover in the treated area within 5 years after the end of treatment.

On an average basis, approximately 10 to 15 new acres of giant reed will be controlled each year. Attachment B contains includes a detailed mitigation and monitoring plan for the Giant Reed Control program.

IV. BANK PROTECTION MITIGATION

The SMP includes a bank protection program that avoids impacts to the greatest extent possible and incorporates mitigation to balance impacts that can not be avoided. The impact of bank protection depends on the type of work done and the sensitivity of the environment where the work is done. This work type/environment relationship is described in further detail in revised Appendix E of the SMP document. Appendix E of the SMP also includes a bank protection impact assessment matrix to evaluate the environmental impact of bank protection and determine when mitigation is required.

When the bank protection impact assessment matrix indicates that mitigation is required, an equivalent area of bank vegetation will be provided. To further reduce the adverse effects of bank protection, the District will mitigate for all impacts for impervious hardscape and for unvegetated rock bank protection at a ratio of 3:1 and for all vegetated rock at a ratio of 1:1 regardless of the determination of the impact assessment matrix.

Mitigation for both in-stream and stream-side impacts will consist of revegetation consistent with the Protocol for Revegetation Associated with Bank Protection in Appendix E of the SMP.

BMP 2.8 also provides that native trees between 6 and 18 inches in diameter at breast height dbh (diameter at breast height) that are lost due to bank protection impacts will be replaced at a ratio of 3:1. Non-native trees between 6 and 18 inches dbh will be replaced at a ratio of 1:1 with appropriate native species. Trees removed for installation of bank protection measures shall be replaced at the site, if feasible, or at the mitigation site created for that bank protection activity.

Mitigation for the bank protection program will be implemented on a project-by-project basis. All impacts and credits as a result of the bank protection program will be measured by area and the ongoing totals will be reported in the annual report.

V. RESPONSIBLE PARTIES

The Watershed Management Division of the District, under the guidance of Mr. Jim Fiedler, Deputy Operating Officer, has the responsibility for implementing and monitoring the SMP mitigation measures.

VI. REPORTING

As described further in Chapter 3 of the SMP document, each November, District staff will hold a "Lessons Learned" meeting to evaluate the SMP program including the BMPs and mitigation. Projects from the preceding season will be reviewed, and modifications to BMPs considered.

An annual report detailing what routine stream maintenance work was accomplished in the prior construction season will be submitted to the District's Chief Executive Officer, the US Army Corps of Engineers, the US Fish and Wildlife Service, California Department of Fish and Game, San Francisco Bay Conservation and Development Commission, National Marine Fisheries Service, the San Francisquito Joint Powers Authority and the Regional Water Quality Control Boards at the end of the maintenance season (prior to January 1) which will specify which projects were completed for the year including type of work, location, and size of the project. Sediment removal, vegetation management, and bank protection work which has been repeated under the SMP will be distinguished from areas where such work is being undertaken for the first time under the SMP. Any modifications of BMPs recommended at the annual lessons learned meeting will be summarized in the annual report.

In addition to reporting on the maintenance activity completed for the year, the District will also provide reporting on the implementation of the mitigation program, including maps showing the location of compensatory mitigation sites, a description of the current stage in the planning and implementation schedule, progress towards success criteria, and a general summary of maintenance of mitigation sites.

For the first 5 years of the program, the District will provide the agencies with a tour of representative work areas for that year and all mitigation sites. This tour will take place after completion of the work season. Preconstruction photographs will also be provided. The District's Geographic Information System (GIS) may be utilized as a tool for reporting annual work activities and implementation of mitigation projects.

VII. REFERENCES

District. 1998. Urgent Sediment Removal Project - Compensatory Wetlands Mitigation and Monitoring Plan. Los Capitancillos Freshwater Wetlands Mitigation site and Pond A-8 Tidal Wetlands Mitigation Site. June 8, 1998.

District. 2001a. Final Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program. August 2001.

District. 2001b. Draft Environmental Stream Maintenance Program. March 2001. *(And any subsequent updates).*

H.T. Harvey & Associates. 2001c. Coyote Creek Parkway Wetland Mitigation Site - Mitigation and Monitoring Plan. Revised May 1, 2001.

Table MMRP-1
Summary of Potentially Significant Impacts and Mitigation Incorporated into the SMP

Key to Table:

Impact:	The impact number and short description from EIR Chapter IV.
BMP Code	The code number cross referencing BMPs in EIR Chapter IV and SMP Appendix G, Best Management Practices listing.
Short Title	Short title of the BMP
Activity	Category of maintenance activity most affected: SR = Sediment Removal; VM = Vegetation Management; BP = Bank protection; MM = Minor Maintenance.

Note: the full text of the BMPs can be found in Appendix G of the SMP.

Impacts	BMP Code	Short Title	Activity
Unavoidable Adverse Impacts that would Remain after Mitigation			
IV-B. Biology			
Impact Bio-4: The cumulative impact of sediment removal and vegetation management would fragment wildlife habitat.	1.13	Prevent Scour Downstream of Sediment Removal	SR
	2.1	Minimize vegetation removal	All
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years at Selected Sites	SR
	Off-site Compensatory Mitigation		
Impacts That Would Be Mitigated to Less than Significant			
IV-A. Geomorphology			
Impact Geo-1. Sediment removal in certain locations may increase erosion downstream of the removal site.	1.13	Prevent Scour Downstream of Sediment Removal	SR

Impacts	BMP Code	Short Title	Activity
Impact Geo-2. Elimination of in-channel vegetation may increase sediment accumulation downstream.	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
Impact Geo-3. Removal of vegetation may increase local erosion.	1.16	Minimize Local Erosion increase from In-channel Vegetation Removal	VM
Impact Geo-4. Bank protection measures can direct flows downstream, resulting in new erosion and bank instability problems.	1.15	Prevent Erosion Downstream of Bank Protection Sites	BP
Impact Geo-5. Removal of woody debris may reduce channel bed diversity.	3.9	Retain Woody Materials and Vegetation	BP, MM
IV-B. Biology			
Impact Bio 1: Sediment removal and vegetation management would impact in-stream wetland and riparian vegetation.	1.13	Prevent Scour Downstream of Sediment Removal	SR
	2.1	Minimize vegetation removal	All
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years	SR
	Off-site Compensatory Mitigation		
Impact Bio-2: The project could result in removal of heritage-sized trees.	2.1	Minimize vegetation removal	All
	2.2	Minimize Stream Access Impacts	SR, BP
	2.8	Replace heritage trees	BP
	3.9	Retain Woody Materials and Vegetation	BP, MM

Impacts	BMP Code	Short Title	Activity
Impact Bio-3: Program implementation could introduce invasive plant species into native, riparian, or wetland habitat areas.	2.1	Minimize vegetation removal	All
	2.5	Planting	BP
	2.6	Mulching	BP
	2.7	Seeding	BP
Impact Bio-5: Bank protection would cause a loss of riparian vegetation functions and values, which would cause a significant cumulative adverse impact on wildlife and fisheries habitat.	2.1	Minimize vegetation removal	All
	2.3	Minimize Hardscape in Bank Protection Design	BP
	2.5	Planting	BP
	3.5	Minimize Loss of Aquatic Habitat from Bank Protection work	BP
	3.14	Maintain or Provide Escape Cover	BP
	1:1 and 3:1 offsite mitigation plantings for planted rock and impervious/unplanted rock designs, respectively		
Impact Bio-6: The cumulative effects of resuming herbicide use in the Pajaro River Basin would substantially reduce the value of the habitat for wildlife.	2.1	Minimize vegetation removal	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.18	Herbicide use in aquatic areas	VM
	3.19	Develop a biodiversity monitoring program	All
	Off-site Compensatory Mitigation		

Impacts	BMP Code	Short Title	Activity
Impact Bio-7: Chemical use by the District, especially for rodent control, could adversely affect non-target species.	2.1	Minimize vegetation removal	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.18	Herbicide Use in Aquatic Areas	VM
	3.2	Minimize Herbicide Impacts on Non-target species	VM
	3.21	Minimize Rodent Control Impacts on Non-target Species	MM
	4.7	Herbicide Use Requirements	VM
Impact Bio-8: Maintenance activities could introduce invasive wildlife species.	3.4	Mitten Crab Control Measures	SR
Impact Bio-9: Maintenance activities could directly harm nesting species protected under the Migratory Bird Treaty Act and other statutes.	2.1	Minimize vegetation removal	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.19	Develop a Biodiversity Monitoring Program	All
Impact Bio-10: Maintenance work conducted in channels could substantially interfere with migration, spawning, incubating, or rearing habitat for native aquatic species.	2.2	Minimize Stream Access Impacts	SR, BP
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.11	Avoid Dewatering an Entire Isolated Stream Reach	SR, BP

Impacts	BMP Code	Short Title	Activity
	3.12	Maintain Low-flow Fish Passage	SR, BP
	3.13	Remove Temporary Fills as Appropriate	SR, BP
	3.14	Maintain or Provide Escape Cover	SR, BP
	3.15	Restore Riffle and Pool Configuration of Channel Bottom	SR, BP
	3.16	Restore Spawning Gravels in Work Site Areas	SR, BP
	3.17	Reuse Sediments and Gravels As Appropriate	SR
Impact Bio-11: Temporarily suspended sediment can adversely affect aquatic or semi-aquatic species.	1.1	Conduct Work During Low Flow Periods	All
	1.2	Tidal Work Areas	SR
	1.3	Dewater/ Bypass Water at Non-tidal Sites	SR, BP
	1.4	Avoid Erosion When Restoring Flows	SR, BP
	1.5	Erosion and Sediment Control Measures	BP
	1.6	Use of Wheel and Track Mounted Vehicles in Stream Bottoms	SR, BP
	1.7	Pump/ Generator Set Operations and Maintenance	SR, BP
	1.8	Handle Sediments So As to Minimize Water Quality Impacts	SR
	1.9	Soil Stockpiles	SR

Impacts	BMP Code	Short Title	Activity
	1.12	Groundwater Management	SR, BP
	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
	1.15	Prevent Erosion Downstream of Bank Protection Sites	BP
	2.2	Minimize Stream Access Impacts	SR, BP
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
Impact Bio-12: Sediment Removal would adversely affect special-status species.	1.3	Dewater/ Bypass Water at Non-tidal Sites	SR, BP
	1.4	Avoid Erosion When Restoring Flows	SR, BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	All
	3.6	Remove Sediment from One Side of Large Channels in Alternate Years	SR
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM

Impacts	BMP Code	Short Title	Activity
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
	3.11	Avoid Dewatering an Entire Isolated Stream Reach	SR, BP
	3.12	Maintain Low-flow Fish Passage	SR, BP
	3.15	Restore Riffle and Pool Configuration of Channel Bottom	SR, BP
	3.16	Restore Spawning Gravels in Work Site Areas	SR, BP
	4.5	Vehicle and Equipment Cleaning	All
	6.1	Spill Prevention	All
	6.4	Vehicle and Equipment Fueling	All
	6.5	Vehicle and Equipment Maintenance	All
Impact Bio-13. Vegetation Management would adversely affect special-status species.	1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	VM
	2.1	Minimize vegetation removal	All
	2.2	Minimize Stream Access Impacts	SR, BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	SR, BP

Impacts	BMP Code	Short Title	Activity
	3.3	Avoid serpentine habitat	All
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
	3.18	Herbicide Use in Aquatic Areas	VM
	3.2	Minimize Herbicide Impacts on Non-target species	VM
	4.7	Herbicide Use Requirements	VM
Impact Bio-14. Bank Protection would adversely affect special-status species.	1.5	Erosion and Sediment Control Measures	BP
	2.3	Minimize Hardscape in Bank Protection Design	BP
	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	2.5 2.6 2.7	Planting, Mulching, Seeding	BP
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	All
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP

Impacts	BMP Code	Short Title	Activity
	3.14	Maintain or Provide Escape Cover	BP
	3.19	Develop a Biodiversity Monitoring Program	All
Impact Bio-15: Minor Stream Maintenance Activities would adversely affect special-status species.	2.4	Minimize Impacts to Special-status Plants by Avoidance Based on Site Assessments	All
	3.1	Minimize Impacts to Special-status Animals Via Site Assessments and Avoidance Measures	All
	3.2	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	All
	3.3	Avoid serpentine habitat	SR, BP
	3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	SR, BP
	3.9	Retain Woody Materials and Vegetation	BP, MM
	3.1	Conduct In-Channel Work During the Dry Season	SR, BP
	3.21	Minimize Rodent Control Impacts on Non-target Species	MM
IV-D. Public Safety			
Impact WQ-1. *Erosion of mercury containing* sediment.	1.10	Avoid Exposing Soils with High Mercury Levels	BP
Impact Haz-1. Preventing exposure of mercury during bank protection.			

Impacts	BMP Code	Short Title	Activity
IV-E. Cultural			
Impact Cul-1: Disruption of Cultural Resources	7.1	Discovery of Cultural Remains or Historic Artifacts	All
Impact Cul-2: Disruption of Native American Burials	7.2	Review of Projects with Native Soil	All

Table MMRP-2
Compensatory Stream Vegetation and Special Status Species Mitigation

Mitigation Component	Location	Size of Mitigation	Compensates for Impacts to:	Description	Installation Date
Tidal Wetland Restoration	Pond A4	30 acres	30 acres of tidal wetlands: • 29 acres from sediment removal • 1 acre from vegetation mgmnt. Will provide foraging habitat for California clapper rail and black rail.	Restore diked salt evaporator pond to historical tidal marsh conditions	2007
Freshwater Wetland Creation	Three sites currently identified:		14 acres of freshwater wetland in stream channels: • 10 acres in Santa Clara Basin • 4 acres in Pajaro River Basin		
	• Los Capitancillos	3 acres, Santa Clara Basin		Convert annual grasslands to seasonal or perennial wetlands adjacent to Guadalupe River	2002
	• Coyote Lakes Park Site 10A	7 acres, Santa Clara Basin		Convert ruderal grasslands to near-perennial wetlands adjacent to Coyote Creek	2005
	• Church Pond No. 2	4 acres, Pajaro River Basin		Convert open water in inactive percolation pond to wetland bench	2003
Stream and Watershed Protection	Undeveloped parcels with streams	Approx. 820 to 1,080 acres purchased and additional restored	92 acres of freshwater wetlands: • 74 acres in Sta Cl Basin streams • 11 acres in Paj Bas. streams • 7 acres in canals • Includes preservation/ restoration of 108 acres of mitigation on land known to support California red-legged frog and western pond turtle.	Preserve, protect, and improve streams and associated watersheds	As lands become available in first 10 years.
Giant Reed Control	Throughout county	125 acres	66 acres of riparian vegetation from vegetation management: • 32 acres in Santa Clara Basin • 34 acres in Pajaro River Basin And, 59 acres of the total 125 acres of Giant Reed Control is being provided for lag time in implementing and effective functioning of mitigation components	Control giant reed outbreaks and provide associated mapping, revegetation, education, and coordination throughout county	2002-2012

ATTACHMENT A

STREAM AND WATERSHED PROTECTION PROGRAM MITIGATION AND MONITORING PLAN

TABLE OF CONTENTS

1.0 INTRODUCTION AND PROGRAM OVERVIEW
  1.1 Program Area
  1.2 Dual Use Mitigation

2.0 PROGRAM GOAL AND OBJECTIVES

3.0 ACQUISITION ELEMENT
  3.1 Overview
  3.2 Implementation Plan
  3.3 Mitigation Credit
  3.4 Success Criteria

4.0 RESTORATION, REHABILITATION AND MANAGEMENT ELEMENT
  4.1 Overview
  4.2 Implementation Plan
  4.3 Mitigation Credit
  4.4 Success Criteria

5.0 PROJECT REVIEW AND APPROVAL

6.0 RESPONSIBLE PARTIES

7.0 PROGRAM SCHEDULE

8.0 MONITORING AND REPORTING

9.0 CONTINGENCY MEASURES

10.0 REFERENCES

APPENDIX A. REQUISITE CRITERIA FOR ACQUISITION

APPENDIX B. PRIORITY EVALUATION CONSIDERATIONS

APPENDIX C. MOCK ACQUISITION EXAMPLE: SUPPORTING GRAPHICS AND MITIGATION CREDIT AREA DETERMINATION

1.0 INTRODUCTION AND PROGRAM OVERVIEW

The purpose of the Stream and Watershed Protection (S&WP) Program is to provide compensatory mitigation for Stream Maintenance Program (SMP) wetland impacts in the SMP work areas (figure MMRP-1). The S&WP Program supports the overall SMP compensatory mitigation program goal to "balance opportunity, feasibility, and cost to provide the maximum benefit to the natural function of the watersheds and streams of Santa Clara County".

The S&WP Program will provide long-term protection and improvement of unique and valuable local steam resources together with their watersheds, in a largely self-sustaining setting. The primary focus is on streams that are in a fairly undisturbed state and generally good ecological condition. Streams that are currently degraded, but that can be returned to good ecological condition, can also be included in the Program.

The S&WP Program consists primarily of land acquisition, but also provides for some restoration, rehabilitation and/or management projects (restoration projects). Properties containing streams and their immediate watersheds will be acquired. Restoration projects that would benefit stream resources would be conducted on selected acquisition projects or other qualifying lands, as described in this document.

Of the 92 acres of mitigation to be provided by S&WP, acquisition is projected to provide 82 acres of credit, and restoration projects are projected to provide 10 acres of credit. The relative contributions of these sub-components may be adjusted based on opportunity and resource needs identified as the mitigation program progresses.

The term "acquisition" in this document refers to the purchase of fee title or less-than-fee-title (i.e. conservation easement) by the District, or contribution to the acquisition of fee title or easement by another entity. Definitions of "restoration" and "rehabilitation" follow US NRCS 1998.

1.1 Program Area

S&WP Program projects will be located on selected streams within District-related watersheds. Figure MMRP-2 is a schematic depiction of the approximate area of interest for the S&WP Program.

1.2 Dual Mitigation Use

S&WP Program projects that provide mitigation credit for SMP wetland impacts may, in some cases, also provide mitigation for other impacts, including SMP Endangered Species mitigation for red-legged frog and pond turtle. Projects must meet any additional ESA-specific mitigation criteria in order to qualify for ESA mitigation. Only those projects that satisfy the criteria for both the S&WP Program and ESA or other mitigation can be used for dual mitigation credit.

2.0 PROGRAM GOAL AND OBJECTIVES

The goal of the S&WP Program is to preserve, protect and improve the ecological condition of selected local streams and their associated watersheds.

The objectives of the S&WP Program are to:

1) Provide the required mitigation credit for wetland impacts from the SMP
2) Promote self-sustaining, natural process-driven stream and watershed system structure and function (i.e. promote maintenance of dynamic equilibrium with a minimum of human intervention or manipulation).
3) Preserve and protect streams that are currently in good ecological condition
4) Improve stream segments that are disturbed or degraded
5) Provide multiple benefits, whenever possible, by working in a programmatic fashion that takes the regional context and needs into account
6) Identify and select feasible and cost effective projects that, on balance, provide the most environmental benefit to stream resources

3.0 ACQUISITION ELEMENT

3.1 Overview

Lands containing selected streams and their immediate adjacent watershed will be acquired. Examples of suitable land includes ranch land, farm land, and other undeveloped or sparsely developed land. The acquisition element will be mostly accomplished by donating funds to park and open space agencies, land trusts, and other land conservation organizations that will ultimately own title or easement and manage the property. The District's contribution will typically provide partial funding of a larger acquisition, however, in some cases the District may choose to purchase and retain sole ownership or easement.

The District will evaluate each potential acquisition project using a hierarchical decision process. At the first tier, each potential acquisition project must meet a standard set of mandatory criteria, termed "Requisite Criteria", to qualify under the Program (Appendix A). These criteria ensure that the mitigation goal is met and mitigation credit is obtained (e.g., land must include a stream of a minimum size and condition, must be located in a watershed associated with a stream in District jurisdiction, must be located in the basin in which impacts occur). Any project that satisfies the Requisite Criteria would meet the program goal and objectives 1- 3 (Section 2.0), and could provide mitigation credit.

Those parcels that meet the Requisite Criteria will be further evaluated using Priority Evaluation Considerations (Appendix B) to determine their relative priority for acquisition. Priority Evaluation Considerations include site-specific habitat features (e.g., type and condition of stream resources, presence of endangered species or habitat), acquisition transaction-related features (e.g., level of protection gained, time frame for purchase), and regional considerations (e.g., links with adjacent protected lands, provision of multiple agency and community benefits). Relative priority for acquisition will be determined based on a collective qualitative assessment of these considerations. Higher ranked parcels will be recommended for purchase. Review and ranking under the Priority Evaluation Considerations ensures that S&WP Program objectives 5 and 6 are met (Section 2.0).

Characterization of site and project features will be based on existing, available data (e.g., USGS and other maps, aerial photographs, reports, etc.), and on reconnaissance-level field surveys. See Appendix C for an example of report graphics for acquisition projects.

Acceptable long-term land use and land management parameters, particularly for the mitigation credit area of a parcel, will be specified as part any partnership purchase agreement. Land will be monitored periodically to ensure that the terms of acquisition continue to be met. The tentative schedule for site inspections is every 2 years for the first 10 years after acquisition, and every 5 years thereafter. Any District-owned or managed lands will also be inspected on the same schedule.

3.2 Implementation Plan

The general approach for acquisition implementation is outlined below.

- Identify available land (project)
- Determine if project qualifies for Program (i.e. meets Requisite Criteria)
- Review Priority Evaluation Considerations for qualified projects
- Recommend and obtain approval for acquisition of higher priority projects from permitting agencies (if necessary, see section 5.0) and District Board of Directors (required for all District land purchases)
- Purchase or contribute to purchase of fee title or easement on preferred parcels
- Conduct long-term periodic monitoring to confirm intended land use and management

3.3 Mitigation Credit

Mitigation credit is directly linked with the presence of streams on-site, and the proximity of the watershed land to the stream(s). Maximum credit is obtained for land that includes the stream and its most immediate adjacent watershed. Less credit is obtained for watershed land somewhat further from the stream.

The crediting ratio and approach is designed to guarantee that substantial benefit is generated to streams when applied on a programmatic basis to a variety of sites with variable characteristics. The relatively high mitigation-to-impact acre ratio ensures protection of large amounts of stream and watershed area compared to impacts. Inclusion of immediately adjacent watershed land recognizes and values the integral function of streams and watersheds. Although the entire watershed influences stream condition, those areas closest to the stream may exert the strongest influence. The mitigation zones create practical stream management areas, and incorporate adequate area to provide for a variety of stream functions, including support of stream-dependent species that also use watershed areas, such as red-legged frog.

The crediting formula is:

- Maximum credit: 10:1 - including and nearest to the stream. This comprises the area within 50 feet of the centerline on 1st order streams, and within 150 feet of centerline on 2nd order and larger streams.

- Minimum credit: 15:1 - including watershed land further from the stream. This comprises the area within 150 to 500 feet of the centerline of 2nd order and larger streams

The minimum amounts of stream and immediate watershed acreage and stream length obtained by application of this crediting formula are:

- A minimum of 10 acres of stream and immediate watershed land acquired per acre of wetland impacted
- A minimum of 1 mile of stream acquired per 10 acres of wetland impacted

Under this formula, more than the minimum acreage or stream miles may be obtained per acre of impact, depending on acquisition site features (e.g., relative amounts of 1st and 2nd order streams, available adjacent watershed widths).

See Appendix C for an example of acquisition project credit area determination.

3.4 Final Success Criteria

The final measure of success will be the completed acquisition of fee title or easements on land selected in accordance with the Requisite Criteria and the Priority Evaluation Considerations in the amount required to fulfill total mitigation obligations.

4.0 RESTORATION, REHABILITATION AND/OR MANAGEMENT ELEMENT

4.1 Restoration, Rehabilitation and/or Management Overview

Properties under consideration for acquisition will be evaluated to determine whether the steam resources would benefit from restoration, rehabilitation and/or management projects (restoration projects). Restoration projects may also be conducted on other lands not acquired under this program. These lands must have the qualifying physical and management characteristics listed under Requisite Criteria (i.e., stream size, stream condition, habitat contiguity, basin locations, and land management). The feasible restoration projects deemed to produce good benefit at a reasonable cost will be recommended for implementation. Implementation of restoration projects meets S&WP Objective No. 4 (Section 2.0)

Examples of actions that could be done to improve stream condition include: 1) removal of nonnative riparian plant species and revegetation with native species; 2) sedimentation reduction measures such as stream-side and watershed road modifications and culvert re-design; 3) and reduction of trampling by installation of fencing and alternative water sources to limit cattle and feral pig access to sensitive riparian areas.

Restoration projects for streams that meet the S&WP Program standard for good ecological condition (as defined under Requisite Criteria, Appendix A) would be optional. Restoration projects would be mandatory for acquisitions that do not meet the S&WP Program standard for good ecological condition, in order to bring them up to the defined standard.

Project implementation includes individual project planning, permitting, environmental review, design, installation, monitoring, and maintenance, as appropriate for the specific project. An individual project-specific MMP will be formulated for each project. The MMP will include the project description, goal, implementation plan and schedule, success criteria, monitoring types and methods, maintenance plan and monitoring report schedule.

4.2 Implementation Plan

The general approach for implementation of restoration projects is outlined below.

For Lands Acquired by the S&WP Program:

- Preliminary identification of potential restoration, rehabilitation and/or management needs (pre-acquisition)
- Priority evaluation, feasibility analysis and final identification of restoration projects (post-acquisition for optional restoration projects, pre-acquisition for mandatory projects)
- Submit proposed higher priority projects to S&WP Review Panel, if necessary (see section 5.0) and District Board for approval (Board approval is required for all District land purchases)
- Draft a project-specific MMP
- Implement and monitor project in accordance with the project-specific MMP

For Other Lands:

- Determine that the proposed project qualifies for initial consideration. The project must be located on land that satisfies the physical feature and management elements of the Requisite Criteria (Criteria 1-6, Appendix A)
- Review and rank the priority of qualified parcels based on the site-specific habitat and regional aspects of the Priority Evaluation Considerations (Appendix B)
- For higher-ranked lands, follow steps under "For Acquisition Lands" above

4.3 Mitigation Credit

Credit for restoration projects will be generated on a dollar value basis as follows: 1 acre of mitigation credit is obtained for each $150,000 of projects funded. The $150,000 figure is based on the approximate per acre cost of District riparian mitigation projects recently implemented in the lower watershed. The cost per acre includes, as applicable, project design (including conceptual design, detailed design, MMP, Engineer's Report), installation or other actions, monitoring, reporting, and maintenance.

Initial identification of potentially suitable restoration or management projects, project-specific CEQA evaluation, permit acquisition, S&WP Review Panel process (if required, see Section 5.0), land use agreement negotiation, and consultant and construction contract management are not included in the cost per acre figure. Therefore, the per-acre cost to the District is greater than $150,000, and will vary based on project needs. The $150,000 per acre cost will be adjusted to reflect inflation as the program progresses.

4.4 Final Success Criteria:

Final success criteria will be formulated on a project specific basis to determine if a project is trending towards, or has achieved the individual defined project goal. The criteria will be specified in the MMP. Success criteria will consist of qualitative or quantitative evaluation of physical features such as vegetation, soil condition, sedimentation, erosion, and condition of installed features (e.g., culverts, fences). For example, a revegetation project may have quantitative plant survival, vegetative cover, and vegetation type performance and success criteria like those of a standard revegetation project. A culvert retrofitting project might require periodic inspection to confirm proper operation and visual evidence of reduced soil erosion.

The S&WP Program restoration element will be completed when all projects required to meet the SMP mitigation obligation have met their individual success criteria.

5.0 PROJECT REVIEW AND APPROVAL

This document provides an initial program description and approach. As the Program progresses, implementation details may be modified to make improvements, as long as these are consistent with the program goal and objectives. Initially, acquisition and restoration projects will be reviewed and approved by permitting agencies on a case-by-case basis prior to implementation. Less oversight is expected over time, however, as implementation experience is used to "fine tune" the implementation process. The ultimate goal is to formulate reliable criteria and procedures that eliminate the need for prior project review and approval by permitting agencies. Once this is accomplished, proposed and completed projects will continue to be fully documented in the District's annual S&WP Program monitoring report to the agencies.

A review panel comprising permitting agency and District staff will be set up to expedite the project review process. This is a necessary function of a programmatic land acquisition program, which relies upon the ability to act quickly and efficiently to capitalize on opportunities. The members of the S&WP Review Panel will convene, review and decide on approval of proposed acquisition projects (and any linked mandatory restoration projects required to restore minimum ecological condition as set for in Requisite Criteria, see Section 4.1) within 4 weeks of notification by the District. Otherwise, after the 4 week notification period, the project will automatically be approved. Optional restoration projects will be reviewed and approved within 12 weeks of notification by the District, or automatically approved.

6.0 RESPONSIBLE PARTIES

The District will be responsible for the implementation and success of the mitigation program. The Program contact is Ms. Gale Rankin, Biologist III, Ecological Services Unit.

7.0 SCHEDULE

The Program will be implemented over 10 years. Acquisition will be completed, and restoration projects will be identified in order to meet the interim milestones. The milestones are:

- 1/4 of the mitigation credit obtained by completed acquisition of property and/or identification of approved restoration projects by year 3
- ½ of credit obtained by year 6
- all of credit obtained by year 10

The target for restoration project implementation is within 3 years after project approval.

8.0 PROGRAM MONITORING AND REPORTING

An annual S&WP Program report will be prepared and submitted to the relevant agencies for 10 years or until all required mitigation credit is obtained under the S&WP Program. The report will summarize all S&WP Program actions, their status, mitigation credits obtained to date, and will compare progress to the program schedule and interim milestones.

The annual Program report will document progress towards attainment of the Program acquisition and restoration project success criteria. Each annual report will include a description of all parcels considered and acquired in the past year, detailing the location, size, and stream and watershed amount present. The report will summarize the Requisite Criteria and Priority Evaluation Criteria analyses. The mitigation credit earned, the entity that will own the fee title or conservation easement, planned land use (e.g., public park or open space, private ranch land, farm land), and planned restoration projects will be described for all acquired parcels. Maps showing acquired parcel locations, boundaries, streams, and mitigation credit areas will be included (see Appendix C). Summary descriptions of all proposed, approved and implemented acquisition and restoration projects for all years will also be provided.

In addition, individual monitoring reports based on the project-specific MMPs will be prepared for each restoration project (Section 4.1). Monitoring programs and report contents will be appropriate for the particular action taken. Individual monitoring reports will be submitted with the Program report.

Both the Program and individual site-specific monitoring reports will identify potential problems that may prevent attainment of project success, and recommend and document any remedial actions. The annual Program report will describe any changes to in program methods or procedures, including those that result from S&WP Review Panel recommendations.

The S&WP Program is a biological mitigation program, and Program monitoring and reporting will be prepared under the supervision of a qualified biologist or other qualified environmental specialist.

Restoration project monitoring and reporting will be done by qualified professionals with expertise in the major field of endeavor (e.g., civil engineer for erosion control measures on culverts and roads, biologist for fish passage or revegetation).

Periodic long term monitoring of acquisition projects will be conducted to ensure that land use and management is consistent with the terms and agreements of the District's financial contribution (Section 3.1). Long-term monitoring of restoration projects will be conducted as specified in the project-specific MMPs, as needed to ensure long-term functional success of projects.

Long-term monitoring reports will be submitted in post-completion years 5 and 10 (after full mitigation credit has been obtained by the Program). In post-completion year 10, the need for further monitoring and reports to document acquisition and restoration project status will be evaluated. Further monitoring and reporting will be continued or discontinued as determined at that time. Reporting shall continue no longer than the life of the SMP for which mitigation is provided.

9.0 CONTINGENCY MEASURES

If success standards for individual projects or the program as a whole are not met and there is reason to believe that they will not be met , and analysis of the causes will be conducted and, if deemed necessary, corrective actions will be taken.

10.0 REFERENCES

United States Natural Resources Conservation Service (US NRCS); United States. Federal Interagency Stream Restoration Working Group. 1998. Stream Corridor Restoration: Principle, Purposes, Practices. Washington, D.C. : Natural Resources Conservation Service ; Springfield, Va.. Distributed by National Technical Information Service.

APPENDIX A

SCVWD STREAM AND WATERSHED PROTECTION PROGRAM REQUISITE CRITERIA FOR LAND ACQUISITION

All of the Requisite Criteria must be satisfied for a parcel to qualify for acquisition and mitigation credit.

1) The land includes a second order or greater stream reach (stream order determined from USGS 7.5' quadrangle map), as determined from the upstream end (per Strahler 1957 in US NRCS 1998).

2) The streams on-site are or can be improved to be in good ecological condition by this program (see stream condition determination below)

A stream on the acquisition parcel will be considered to be in good condition if the following criteria are met:

a) The stream reach on the acquisition parcel is largely unaltered by direct modification

- On at least 80% of the stream length occurring on the parcel, the stream bed and bank is natural, with bottom and side slopes of native material, and with little or no evidence of direct physical modification (i.e. channel not mechanically straightened, widened, covered with hardscape or crossed by bridges for more than 20% of channel length).

- If less than 80% of the stream length is in the condition described above, the stream bed or banks can and will be rehabilitated or restored for at least 80% of stream length.

b) The stream reach on the acquisition parcel supports predominantly native riparian or other native woody vegetation consistent with site potential.

- For at least 80% of the stream length (on the parcel): woody stream-side vegetation canopy occupies at least 75% of the stream corridor and canopy cover within woody vegetation patches is least 75%.

  Lower extent or percent cover is acceptable if explained by natural site features that control the site's capability to support vegetation, such as substrate, slope, and aspect. For example vegetation may be sparser on a very steep gradient or on well-drained course alluvium.

- < or = to 40% of relative linear extent of stream-side vegetation comprises cover of non-native woody canopy.

- < or = to 10% of the total relative linear extent of stream-side vegetation comprises cover of invasive woody or herbaceous species.

3) The parcel's stream(s) is contiguous with transitional upland and stream habitats.

   a) The immediately adjacent watershed land (within 500 feet of the stream centerline) is, and will remain, undeveloped or lightly developed on at least one side (immediately adjacent watershed may be farm or ranch land; a stream-side road may be present).

   b) Similar stream habitat occurs either upstream or downstream of the site's largest stream (i.e. the stream is not an isolated fragment).

4) The land is located in a watershed that is associated with streams within the District's jurisdiction.

5) The land is located within the same basin as the impacts to be credited (San Francisco Bay or Monterey Bay basins).

6) The planned long term on-site land use and/or management is consistent with maintenance of good stream condition. Minimum standards or criteria for grazing management and trail routing, particularly within the mitigation credit area, may be formulated as the Program progresses.

7) The land was not already protected under public ownership, under ownership by a private land conservation organization, or under conservation easement prior to the acquisition action to which the District is contributing. (The District may make it's financial contribution within 18 months of the purchase).

8) The land is potentially subject to current or future development or degradation or presents a unique conservation opportunity.

9) The land is not under consideration for purchase for other non-mitigation or enhancement purposes by the District (such as to provide for flood protection). The land may be used for other mitigation or enhancement projects.

10) The land is available from a willing seller.

APPENDIX B

SCVWD STREAM AND WATERSHED PROTECTION PROGRAM PRIORITY EVALUATION CONSIDERATIONS FOR ACQUISITION

SITE-SPECIFIC HABITAT FEATURES

Size and General Descriptive Setting

1) Site size (total)
2) Total mitigation acreage
3) Site location, land use, general topography and relationship to streams, general vegetation description
4) Length, order and perennial or ephemeral status of each stream on entire sites and within mitigation credit area (larger streams and/or perennial streams have higher priority)
5) General stream-related vegetation types
6) General physical features of streams(s)
7) Potential Constraints
8) Other

Features of the Mitigation Credit Area

1) Areas known to be occupied by California red-legged frogs or western pond turtles
2) Biological or natural features consistent with the habitat requirements of the California red-legged frog or western pond turtle present
3) Other special-status species or their potential habitat present
4) Other noteworthy biological or natural features present (e.g., native fisheries, locally rare species or habitats, contribution to maintenance of cool summer water temperatures on site and downstream)
5) Includes erosion/sedimentation problems that will be addressed by an S&WP restoration project

Features of the Remainder of the Parcel (outside the mitigation credit area)

1) Areas known to be occupied by California red-legged frogs or western pond turtles
2) Biological or natural features consistent with the habitat requirements of the California red-legged frog or western pond turtle present
3) Other special-status species or their potential habitat present
4) Other noteworthy biological or natural features present
5) Includes erosion/sedimentation problems that will be addressed by a S&WP restoration project

ACQUISITION TRANSACTION FEATURES

1) Potential threats to property if not acquired
2) Protection attained
3) Unique opportunity presented (e.g., multiple contiguous parcels available together, key location to link public lands)
4) Time frame for completion of acquisition
5) Transaction manageability (e.g., contract complexity/agreement monitoring)
6) Amount of mitigation credit generated
7) Other

REGIONAL FEATURES

1) Supports a watershed-wide programmatic approach to maintenance mitigation by maximizing regional, long-term, ecological benefits.
    - Identify whether a target stream is involved
    - Identify links with other land planning, preservation or management efforts (e.g. WMI, FAHCE)
    - Identify other regional, long-term ecological benefits
2) Considers adjacent land uses, ownership, and linkages with other protected lands (current or planned) including mitigation sites and parks in determining site value and function
3) Acquisition program considers watershed position in overall evaluation, and considers potential increased values of lower watershed locations
4) Provides multiple benefits to the public good by supporting other interests of the District or the interests of other agencies, community groups or organizations
5) Other

APPENDIX C

Mock Acquisition Example
Supporting Graphics and Mitigation Credit Area Determination

A "mock parcel" acquisition is presented to illustrate GIS maps and graphics produced during candidate project review and to illustrate the mitigation credit calculation method. The mock parcel is an imaginary, approximately 500 acre partnership acquisition parcel based on a real world location Parcel boundaries; stream locations, orders, and lengths; and the location and sizes of mitigation credit areas will be determined using existing information and maps. Data sources include assessors parcel maps and USGS topographic maps. Most information will be overlain and evaluated with the ArcView GIS program.

Regional Context:

1) **Regional Map** (not shown). The parcel will be shown in it's regional context, showing other streams, parks and open space, nearby cities and other regional features. This map will be similar to an enlarged quadrant of Figure MMRP-2. Unlike a real candidate parcel, the mock parcel location cannot be specified, and no example graphic is provided.

2) **Figure MMRP-3: Vicinity Map.** The parcel is shown in relationship to features in the immediate vicinity on a USGS topographic map or other existing map or aerial photograph. Relevant features such as other public lands, mitigation sites, or developments are shown. In this example, the mock parcel is located directly north of other existing public land and just upstream of a small development.

Site features:

3) **Figure MMRP-4: Site Map.** General site features, such as topography, streams, dirt and paved roads and buildings are shown in more detail on existing available topographic maps or aerial photographs.

Stream identification:

4) **Figure MMRP-5.** The SCVWD 500 scale creeks map and the USGS 2000 scale creeks map show two versions (one more detailed, one less detailed) of stream mapping of the site.

> 5a) **SCVWD 500 Scale Creeks.** The SCVWD 500 Scale Creeks map shows all streams on the District GIS layer of the same name. Most of this data was obtained from Barclay Mapworks, Inc., Mountain View, CA, based on hand digitized information from 1" = 500' scale maps. Streams within District jurisdiction (i.e. with watersheds of 320 acres or more) are indicated by bold lines. In this example, the largest stream on the mock parcel is within the District's jurisdiction (indicated by a heavier blue line). Five other streams are tributaries to the larger stream, and several of these have their own tributaries. This data layer provides more detailed background information on streams than USGS maps, but is not used to determine which streams qualify for mitigation credit.

5b) USGS 2000 Scale Map. The USGS 2000 Scale Creeks map shows, in isolation, all streams mapped on a standard USGS 7.5 minute topographic quadrangle map (quad). The stream order of all creeks within the parcel is also shown.

USGS 7.5' quads will be the standard used to identify streams that qualify for mitigation credit under the S&WP Program, and to determine stream order and length. This insures standard mapping regardless of parcel location. The program gains credit from acquisition of 1st order or greater USGS 1:24,000 (2000 scale) creeks. Note that only the largest stream and two of the five tributary streams on the SCVWD 500 scale creeks layer appear on the USGS map. USGS mapping was done at a less detailed scale, and therefore does not include many of the smaller tributaries mapped by the SCVWD layer.

Stream order is determined from the top of the watershed down, using the method of Straher (US NRCS 1998), so that smaller streams with no upstream tributaries are 1st order streams. The mock parcel contains a segment of one 2nd order stream and complete reaches of two 1st order streams.

The full detail USGS quad map (Figure MMRP-4) classifies the largest stream as perennial (solid blue line), and the 2 smaller streams as intermittent (dashed blue line).

Credit Area Determination

5) **Figure MMRP-6: Mitigation Credit Area.** The mitigation credit zone boundaries around the qualifying USGS mapped streams are determined using GIS (ArcView). Figure MMRP-6 shows the 50 foot zones around two 1st order streams, and the extent of 150 and 500 foot zones around the 2nd order stream (Section 3.2). The amount of acreage within each zone is calculated by the GIS. The corresponding mitigation ratio (10:1 or 15:1) is applied to each area, and the mitigation credit amount is determined (Table 1).

In this example, the mitigation area would comprise 152 acres of the approximately 500 acre parcel (Table 1). The District would contribute funding for 152 acres to the partnership acquisition of the entire parcel. Other partners would contribute the remaining funds. The fee title or easement for the entire parcel would then be held by a park, open space or conservation organization.

The District's contribution to the mock parcel acquisition results in:

1) 12.1 acres of mitigation credit obtained
2) 2.5 miles of stream acquired (equivalent to 2.1 miles of stream per 10 acres of impact)
3) 152.5 acres of stream and immediate watershed land acquired (equivalent to 12.6:1 acquisition to impact ratio)

The actual amount of stream miles and acres acquired per acre impacted will vary based on site features, but would be no less than 10 ac acquired per acre impacted, and 1 mile of stream per 10 acres impacted (Section 3.3).

TABLE 1. Mock Parcel Mitigation Credit

Mitigation Area Feature	Stream Miles Present	Stream and Watershed Land (ac)	Mitigation Ratio	Mitigation Credit (ac)
First Order Streams	1.21			
Second Order Streams	1.32			
1st Order Stream 50' buffer Area		11.51	10:1	1.15
2nd Order Stream 150' Buffer Area		45.61	10:1	4.56
2nd Order Stream 150-500' Buffer Area		95.35	15:1	6.36
Total	**2.5 miles**	**152.5 acres**		**12.1 acres**

ATTACHMENT B

GIANT REED CONTROL PROGRAM MITIGATION AND MONITORING PLAN

Introduction

The Giant Reed Control Program is proposed as mitigation for impacts from vegetation management in streams to 66 acres of riparian vegetation in Santa Clara County. Overall, this component includes removing giant reed (*Arundo donax*) from 125 acres with 66 being credited toward riparian impacts and the additional 59 acres as compensation for lag time in the implementation of other mitigation measures.

Giant reed is a highly invasive non-native species that infests creeks and adjacent habitat throughout Santa Clara County. Giant reed displaces native vegetation thus reducing the quality of riparian habitat. It contributes to localized flooding by blocking channels. It is also highly combustible which heightens fire danger in urbanized streams.

The control program would consist of the removal of giant reed from 125 acres along with associated measures required to implement a comprehensive control program.

Specific Actions Required for Implementation

The specific program implementation measures are listed below. Each component will be explained in more detail. A table showing the schedule of individual components is included in this plan.

- Mapping of giant reed in all major streams in Santa Clara County.
- Creation of a GIS data-base to manage information on mapping and control efforts.
- Prioritization of efforts using mapping data and "target streams" concepts.
- Creation of pilot sites as a tool to create and refine an optimum control program. Pilot sites would use various control methods to determine efficacy of individual methods.
- Removal of 125 acres of giant reed from Santa Clara County streams over a period of ten years. This effort would consist of removal and disposal of bio-mass and initial treatment with an appropriate herbicide.
- Follow-up herbicide treatments for a period of 3-4 years to assure completes control of sites where giant reed has been removed.
- Revegetation of qualified areas where natural recruitment of native species is unlikely to occur and channel constraints do not preclude dense vegetation. A qualified area is defined as an area where terrestrial riparian vegetation would likely be found in an undisturbed system.
- Creation of an outreach program designed to educate landowners and the general public about invasive species in general and about giant reed specifically.
- Participation in county-wide and regional control efforts of giant reed and other invasive species.
- Monitoring and reporting on success criteria attached to the various sub-components of the Giant Reed Control Program.

Mapping and GIS Database Creation

Outbreaks of giant reed throughout the county will be mapped. Figure MMRP-7 shows preliminary mapping data. The goal of mapping is to assess the extent of infestation, prioritize control efforts, and track progress toward control and eradication. The District has started gathering existing information and doing field surveys at a macro level. Additional surveys to refine data and fill in gaps will be performed as the program is brought on line. Where conditions are favorable, aerial photography and remote-sensing technology may be used for data collection. A protocol will be developed for locating and quantifying the size of existing stands of giant reed to ensure consistent data collection. Most data will be collected using GPS technology. Data will be incorporated into a GIS database to facilitate map generation and data analysis. The GIS data will be made available to groups outside the District who are participating in control efforts or conducting research. Mapping may also be done for Tamarisk and Cape Ivy as these are particular species of concern in county watersheds. To the degree that mapping of these species can be accomplished as part of the Giant Reed Program, data will be collected. No commitments are being made for control of other species are being made as part of the program.

Prioritization and Pilot Sites

Concurrent to the mapping effort, the District will identify pilot sites to evaluate a suite of control options. While control of giant reed uses a combination of mechanical and chemical control techniques, there are variables that may be evaluated to optimize the program for both efficiency and protection of resources. Timing of control, varied rates on herbicides, mulching, alternative disposal of bio-mass, and other criteria will be evaluated to continually improve control efforts. The District will also prioritize control efforts based on a number of factors that influence the District's ability to control giant reed within particular geographic boundaries. These criteria are as follows:

- Property Ownership – Control of giant reed will have more success if clearances can readily be gained to control all infestations in a given area. In many cases, the District owns or has easement on land where giant reed is present. In other instances, partnerships will have to be formed with other agencies, municipalities, and private land-owners to facilitate uniform control through an entire watershed. The ability to gain clearances with all involved parties will determine the priority for doing control in those areas in any given season.

- Value of Biological Resources (target streams) – the value of remaining riparian resources and habitat in a given geographic area will determine the priority a particular creek has for control of giant reed. This "target streams" concept originated in the stakeholder process when the various parties acknowledged that certain watersheds in Santa Clara County merit more attention because the remaining habitat and resources are at greater risk if work is deferred. Those creeks that have significant remaining riparian corridor, anadramous fisheries, and other valuable biological resources will receive a higher priority for control because the resources are of higher value and more benefit is to be gained from earlier efforts.

- The Ability to Eradicate Giant Reed within Defined Boundaries – because of the way giant reed spreads, there are opportunities for eradicating the plant in entire watersheds if infestations are limited. Some smaller watersheds have very limited infestations of giant reed or those infestations are grouped together rather than being spread out. In these instances, a few years of control may be able to remove all giant reed from a given watershed with little or no potential for re-infestation. Creeks where this strategy can be implemented will have a higher priority in the overall program.

- Partnerships with other Stakeholders – in some cases, there is another interested stakeholder who may have resources available or may wish to partner with the District for a specific reason. These overtures and opportunities will be given particular attention in order to get the greatest benefit toward program goals.

There may be other priorities developed as the program is implemented, but these will be used for initial implementation.

Initial Control

A total of 125 acres of giant reed will be controlled over a 10-year period. The program is designed to control 10 to 15 new acres of giant reed each year as an average target. Some years may see slightly more acreage controlled, while others may see slightly less. Density of infestation, access to control sites, weather, stream conditions, etc. will play a role in the amount of giant reed controlled in any given year. Initial control will consist of removal of biomass, appropriate disposal of biomass, and treatment of clumps with an approved herbicide. Typical herbicide control would consist of applying glyphosate (primarily in an aquatic formulation) in a concentrated form to freshly cut stumps. The herbicide is taken into the underground portions of the plant and kills the roots. This "cut-stump" control method has proven highly effective at reducing the amount of re-growth. Because it is a topical application, there is a high level of protection afforded to adjacent resources.

Follow-up Control

Control of giant reed requires follow-up herbicide applications to re-growth, particularly on large stands. Typically, the amount of re-growth declines over a period of 2-3 years so that in year 3 or 4, there is nothing remaining of the original stand of giant reed. The program is designed to track control efforts and commits to ongoing control (projected at 3-5 years of treating re-sprouts) to ensure complete kill of stands of giant reed. There may also be opportunities for using other control methods as the size of the infestation is reduced. This strategy gives the best chance for long term eradication of giant reed in the program area.

Revegetation

In areas with significant remaining riparian vegetation, natural re-colonization of the treated site is expected after persistent control of giant reed clumps. Revegetation with site-appropriate native species will be implemented in areas where natural revegetation does not occur or is unlikely to occur due to the absence of adjacent parent stock. Revegetation requirements will be assessed in the following manner:

- Giant reed infests a variety of ecological niches in Santa Clara streams. It occupies areas that would otherwise be open water, wetland, riparian, and in some cases, upland habitat. The need for revegetation will be evaluated by applying ecological criteria to the control site to determine where, and how much, revegetation should occur. An eradication site will be restored to the habitat type that would most likely be present in an undisturbed system.

- During the treatment period (2-4) years on any given site, re-growth or recruitment of native species will be monitored. A determination will be made by a qualified biologist as to whether the control site would have naturally occurring riparian vegetation, whether there is adequate habitat developing naturally or whether active revegetation efforts will be required at the end of the treatment period.

Data will be included in the annual report on the amount of native revegetation coming in naturally. The goal of revegetation is to have 40% native cover in the treated area within 5 years after the end of treatment. In areas where ecological indicators dictate that riparian vegetation would be present, this goal may be achieved by planting in an area immediately adjacent to the control site. The rhizomes of giant reed can take years to completely degrade and will effectively inhibit growth of other plants until they have completely decomposed so the removal area may not be able to be planted in the short term.

- Channels will be evaluated using the Maintenance Guidelines to assess whether there is adequate capacity to support additional in-stream vegetation. Large-stature riparian species will not be introduced into areas where there is not adequate capacity to convey flood flows. In areas where capacity would be compromised by heavy, riparian vegetation, revegetation will be limited to smaller stature riparian and herbaceous species. This element will be applied on a site by site basis.

Revegetation will be done in a manner consistent with current design, installation and maintenance practices in order to ensure a high potential of success in areas where revegetation efforts are implemented. The guidelines for revegetation of giant reed control sites will have the following criteria:

- Species selection for revegetation of any given site will be made by evaluating site conditions including soils, hydrology, exposure, adjacent plant community, and appropriate reference data from other locations in the watershed. (A typical species list is included below).

- Planting densities will be determined based on the potential of a given site but will be, in general, 12 feet on center for trees and 6 feet on center for shrubs. Pole cuttings, when used, will be planted 3 feet on center. If direct seeding is used as a planting technique, the same spacing will be used as for container planting.

- Plant material will be planted using installation methods that are standard to the industry i.e. soil preparation, propagule type, local collection, cutting size, etc.

- Revegetation plantings will be irrigated as needed for the 3 year establishment period. The methods chosen to provide irrigation will be included as part of the annual report but the method used is the decision of the District. Selection of irrigation methods will focus on efficient irrigation that meets the horticultural requirements of the site while being cost-effective and implementable. In most cases, automatic irrigation systems will not be used.

- Other maintenance activities performed during the establishment maintenance period will include weed control, browse protection, site inspection, and insect and disease control.

- Plant material will be maintained for three years as a general rule. If plants become established to the degree that maintenance can be curtailed in less than three years, appropriate reductions in maintenance will be made.

- If a site is not established to a degree that maintenance can cease after three years, the District will meet with the appropriate agencies to discuss contingencies and remedial strategies.

- Replanting will be done if a given site does not meet agreed upon success criteria. Replanting does not mean that the establishment period for a site begins anew. New plantings will be subject to the same requirements as the original plants (3 years of maintenance).

- Success criteria for revegetated sites will be 40% native cover of plantings on individual giant reed control sites 5 years after final control work was done. No numerical survival criteria are required under this program other than during the early establishment period. 70% survival of installed container plantings will be required for the three year establishment period. 50% survival of installed pole cuttings will be required for the three year establishment period.

- Monitoring will be done for five years after initial planting. At the end of five years, a final report will be given for each site. If all success criteria have been met at the end of this period, no further monitoring or reporting will be required.

- For the sake of definition, all references to maintenance, monitoring, and reporting are calculated from the date of final control on a given site (no active revegetation) or the date of initial planting (active revegetation).

Typical Revegetation Species List*

Salix laevigata
Salix lasiolepsis
Salix hindsii
Populus fremontii
Quercus lobata
Quercus agrifolia
Sambucus mexicana
Acer negundo
Rosa californica
Rubus ursinus
Leymus triticoides
Artemesia douglasiana
Baccharis salicifolia
Symphoricarpus alba

* - Some or all of the above species may be used at a given revegetation site.

Educational Outreach

The District will develop and distribute educational materials to inform the community about the problem of invasive species, particularly giant reed. This outreach may include some or all of the following:

- Printed literature distributed to public agencies, environmental groups, gardening clubs, nurseries, and the general public.
- Workshops on Managing Invasive Species.
- Public forums on invasive species in Santa Clara county watersheds.
- Monitoring and input on landscaping done near creeks to ensure that invasive species are not introduced in new landscape plantings.

District staff may provide technical assistance to interested county landowners in managing invasive species on their property. All mapping, research information from pilot control sites, and information gathered throughout project implementation, will be made available to the public to assist in additional efforts to control giant reed.

Regional Coordination

Control of giant reed throughout the county's watersheds requires a strategic approach. The District's primary effort will be for District personnel to remove giant reed on 125 acres of District land and non-District land where voluntary fee title or easement can be obtained for the control effort. The District will participate with other agencies and landowners in the county to develop additional giant reed control programs beyond the 125 acres. The District will investigate regional forums, coordination of permitting, joint participation in grants, training of staff, and cost sharing in control efforts.

Monitoring and Reporting

The program will contain ongoing monitoring of various program components with regular reports submitted under the SMP. Monitoring of pilot sites and control sites will occur each year with data incorporated into the annual report for SMP activities. Monitoring of county streams for new infestations will be an ongoing process with the GIS layer being updated as needed. Annual reports will also contain information on revegetation efforts and other relevant data as it pertains to the program.

Staff or Agency Responsible for Implementation

The Unit Head of the Vegetation Management Unit at the Santa Clara Valley Water District is the designated staff responsible for implementation of this mitigation measure.

Timing of Implementation

A schedule for implementation of each component of this program is included as a separate appendix in this document.

Specific Performance Criteria to Ensure Success of Implementation

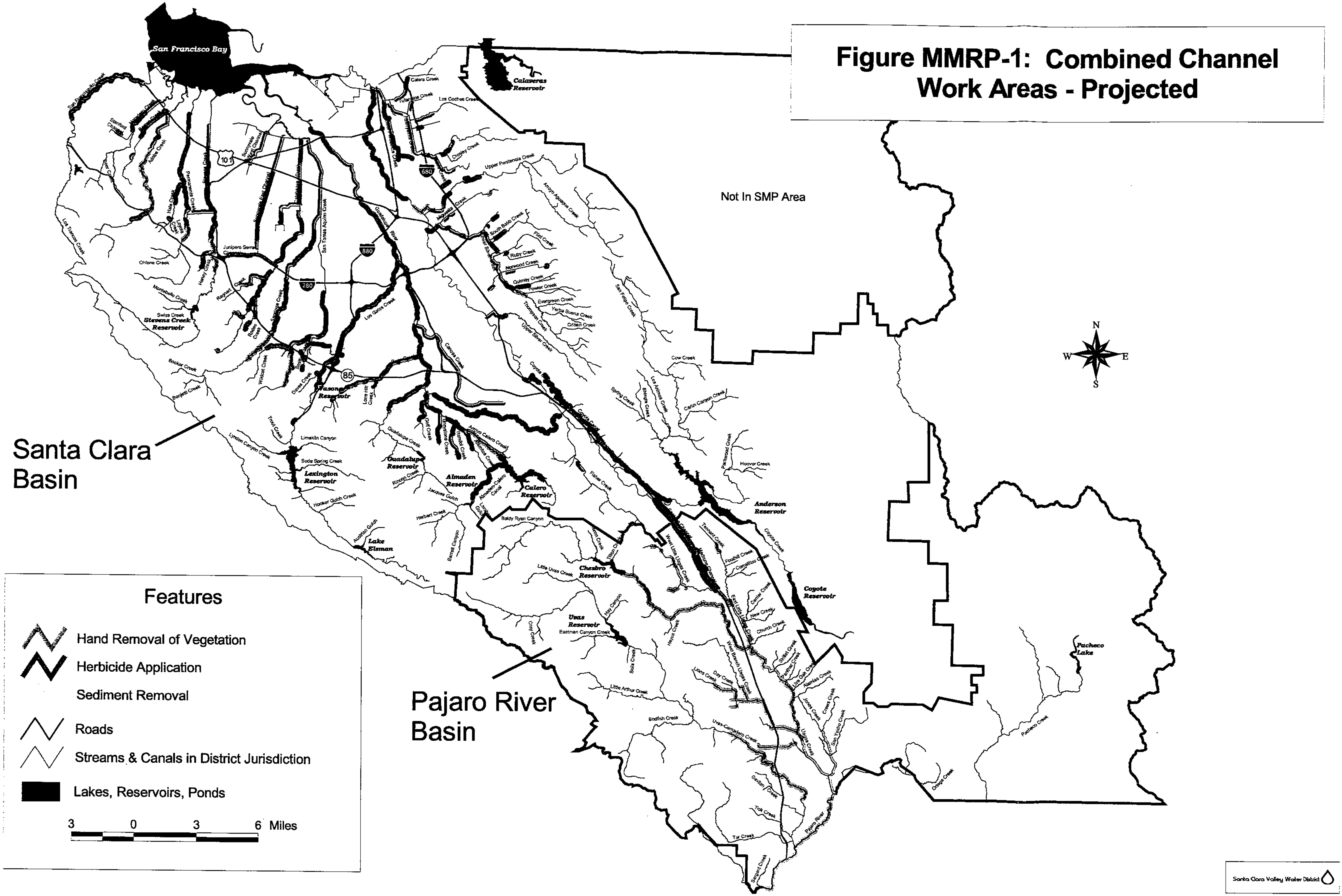
Certain time/critical elements may be evaluated as follows:

- Mapping of all existing stands of giant reed in Santa Clara County within the first two years of the program.
- Creation of a GIS data layer showing the location of giant reed locations within the first two years of the program.
- Control of 50 acres of giant reed within 5 years of program implementation.
- Control of 100 acres of giant reed within 10 years of program implementation.
- Revegetation of qualified sites within one year after the cessation of control efforts on a given site.
- Presentation of one workshop or conference on invasive species per year.

Timing of Monitoring and Reporting

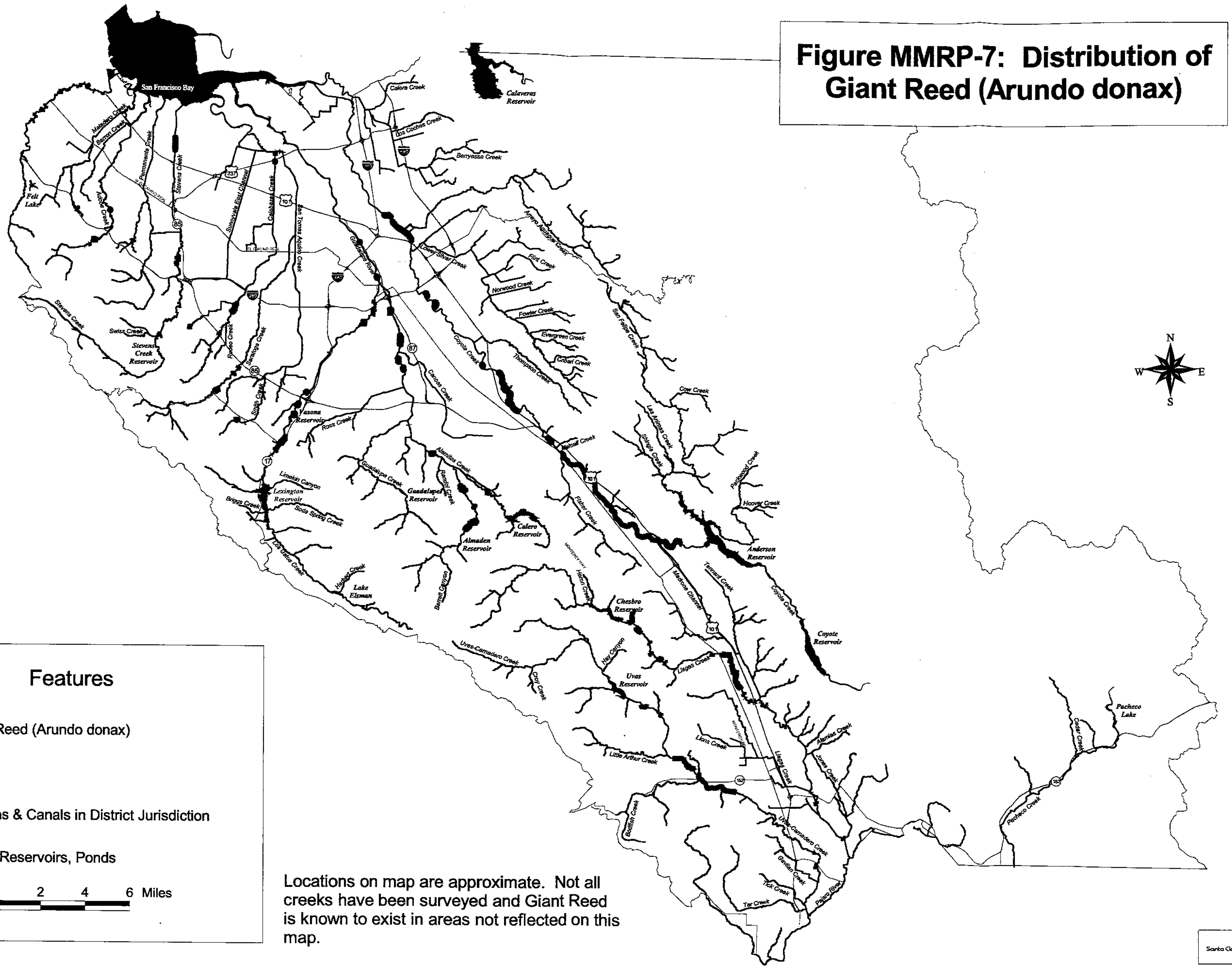
The District will submit an annual report on the implementation of the various mitigation components as part of the reporting component outlined in the Stream Maintenance Program. This report will contain information on the progress made on individual components of the Giant Reed Control Program within the last calendar year. Specific information might include: location of control sites, amount of giant reed controlled, control techniques used, revegetation efforts (if any), date of workshops held, and potential control or revegetation sites for the upcoming year. Reporting may also include field tours of representative control sites and/or mitigation sites. Reports will be submitted to USACE, United States Fish and Wildlife Service (USFWS), CDFG, BCDC, and RWQCB as agreed to in the Stream Maintenance Program. This report will be submitted on the same dates as other reporting commitments made in the Stream Maintenance Program.

Figure MMRP-1: Combined Channel Work Areas - Projected



08/10/2001 2000_176\smp_figure_II-3.apr\County_MMRP Figure-1_11x17_v1

Figure MMRP-7: Distribution of Giant Reed (Arundo donax)



Features

- Giant Reed (Arundo donax)
- Roads
- Streams & Canals in District Jurisdiction
- Lakes, Reservoirs, Ponds

2 0 2 4 6 Miles

Locations on map are approximate. Not all creeks have been surveyed and Giant Reed is known to exist in areas not reflected on this map.

08/13/2001 007466/2000_172\County_MMRP Figure-7_11x17v1

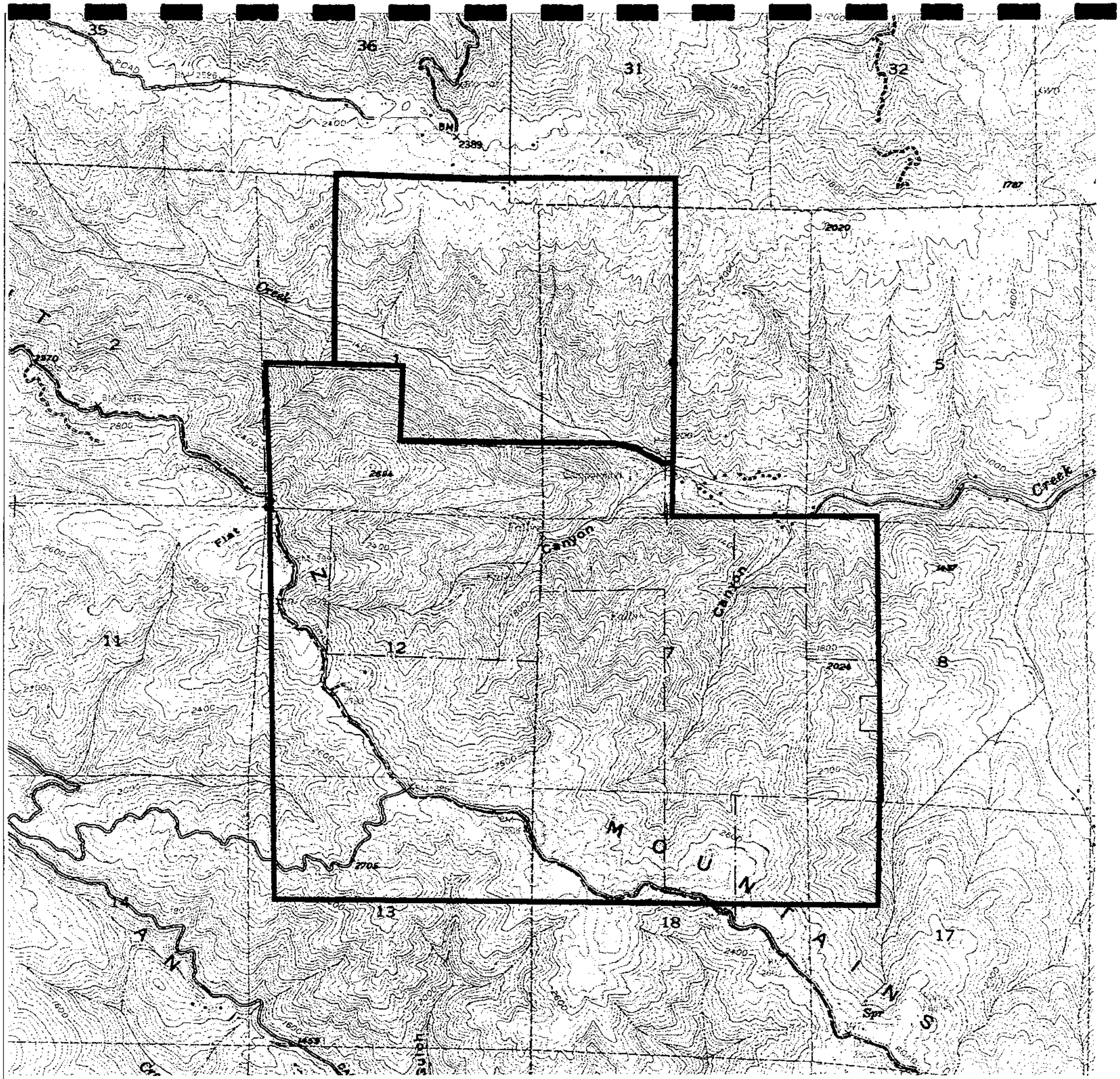


Figure MMRP-3: Stream and Watershed Protection: Mock Acquisition Example

Vicinity Map

▭ Mock Parcel
▭ Other Public Lands

800 0 800 1600 Feet

Santa Clara Valley Water District
5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686

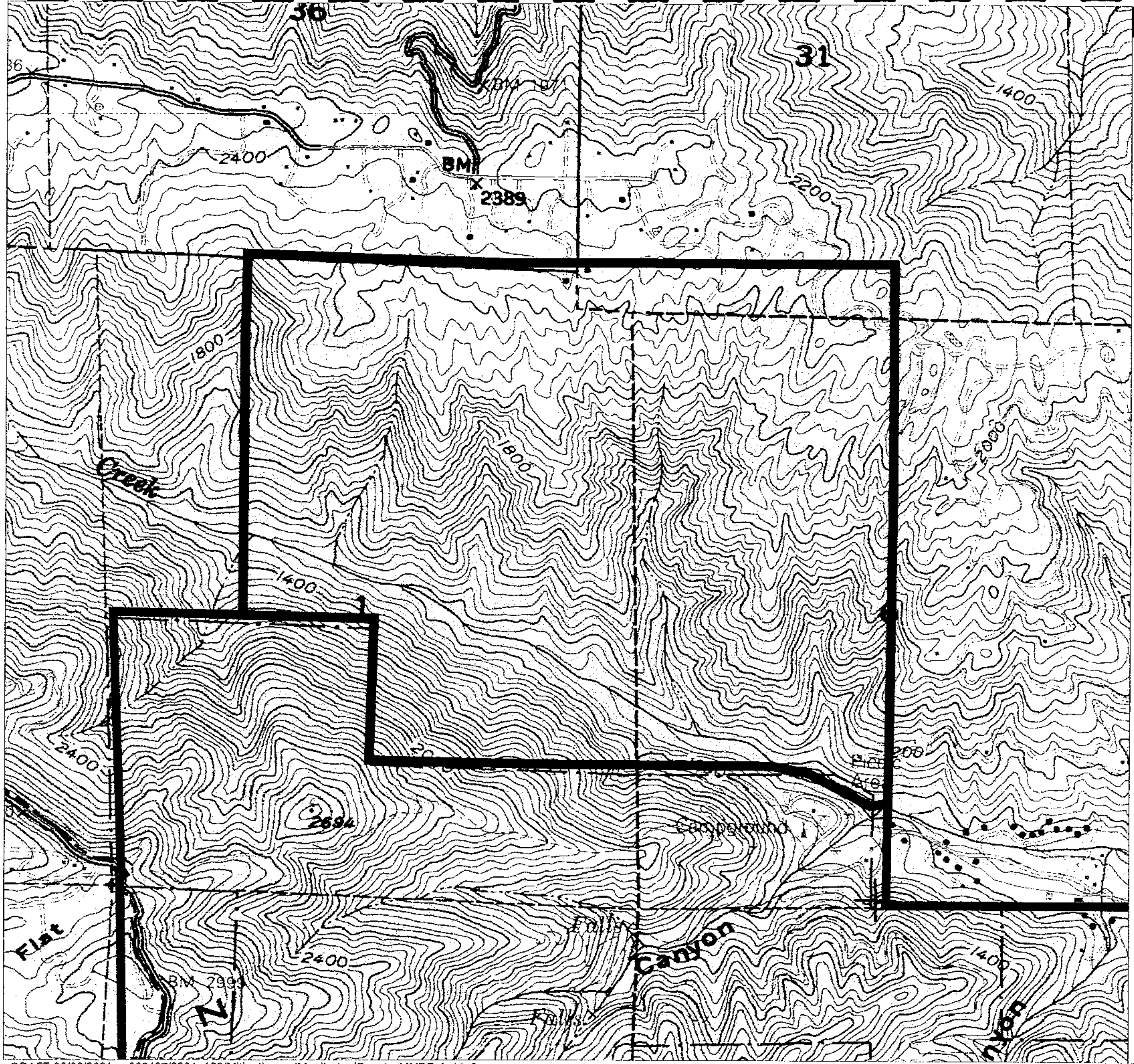


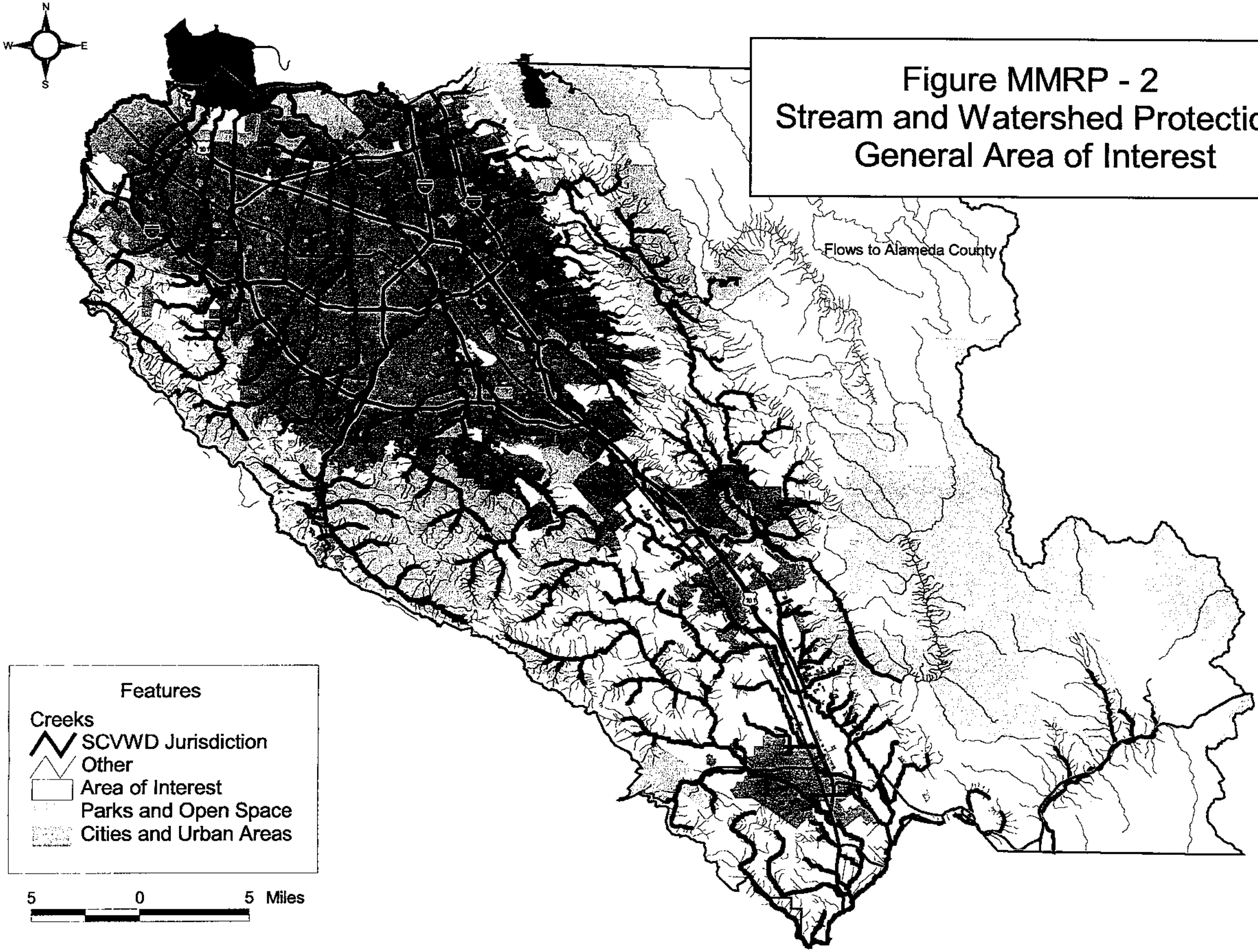
Figure MMRP - 4: Stream and Watershed Protection: Mock Acquisition Example

Project Site

☐ Mock Parcel
☐ Other Public Lands

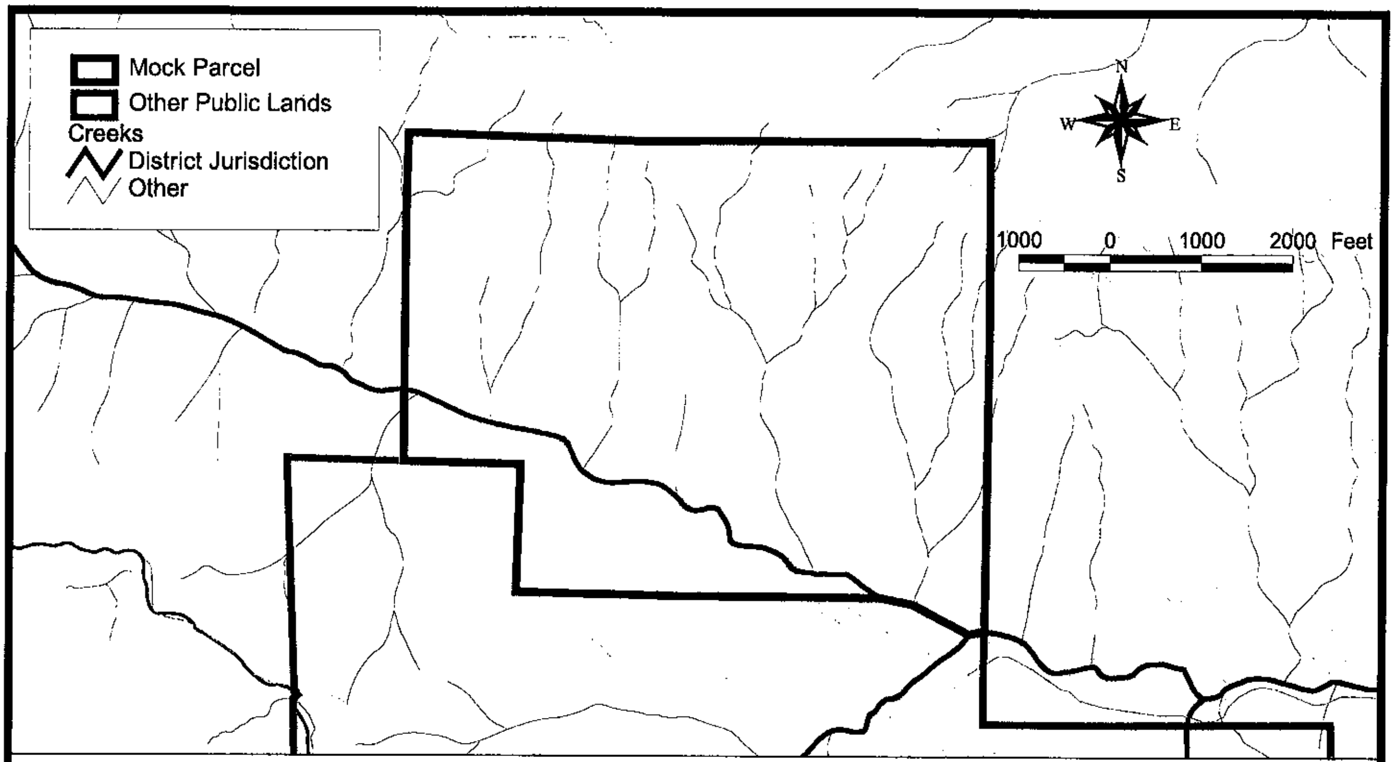
Santa Clara Valley Water District
5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686

Figure MMRP - 2
Stream and Watershed Protection: General Area of Interest

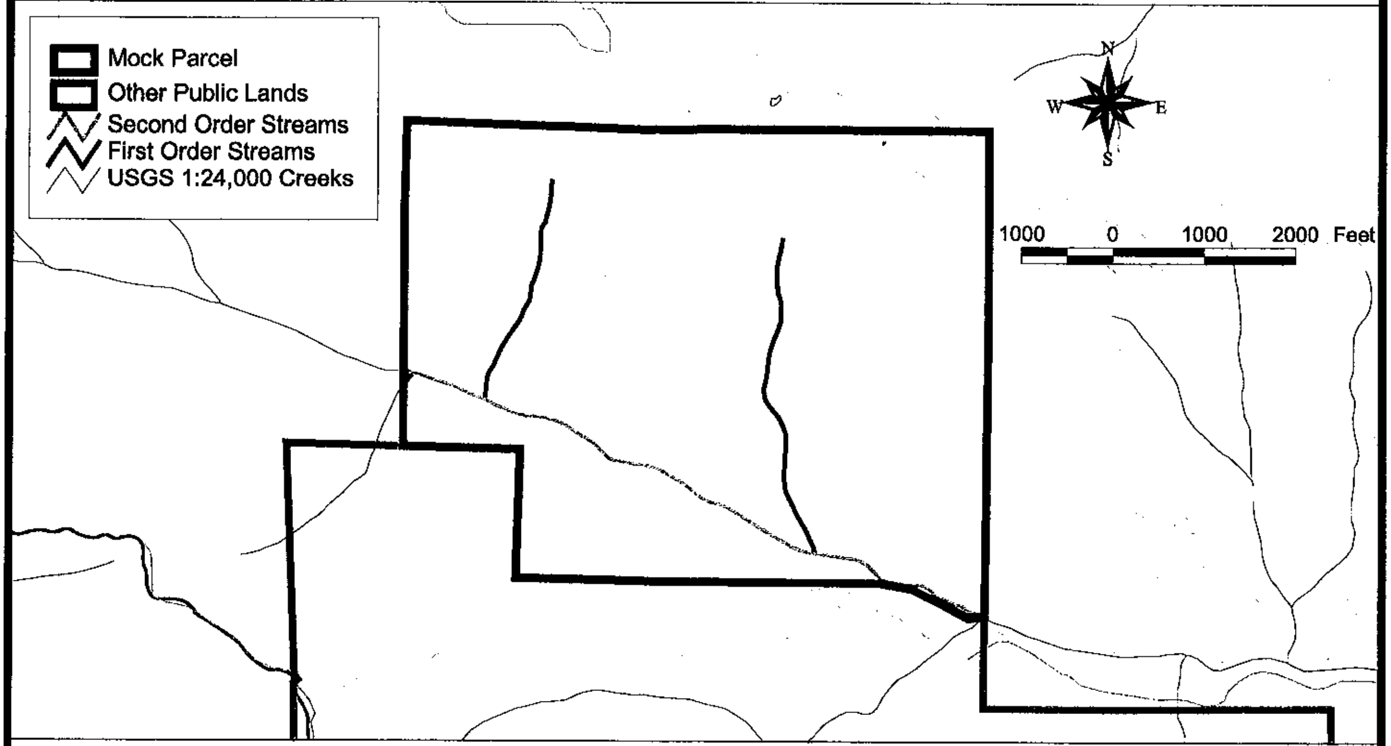


Santa Clara Valley Water District

DRAFT 08/06/2001 000407\2001_139\MitigationandMonitoring\County_MMRP-2_11x8



5A. SCVWD 500 Scale Creeks.



5B. USGS 2000 Scale Creeks (1:24,000).

FIGURE MMRP-5. Stream and Watershed Protection:
Mock Acquisition Example
SCVWD 500 Scale and USGS 2000 Scale Creeks

Santa Clara Valley Water District
5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686

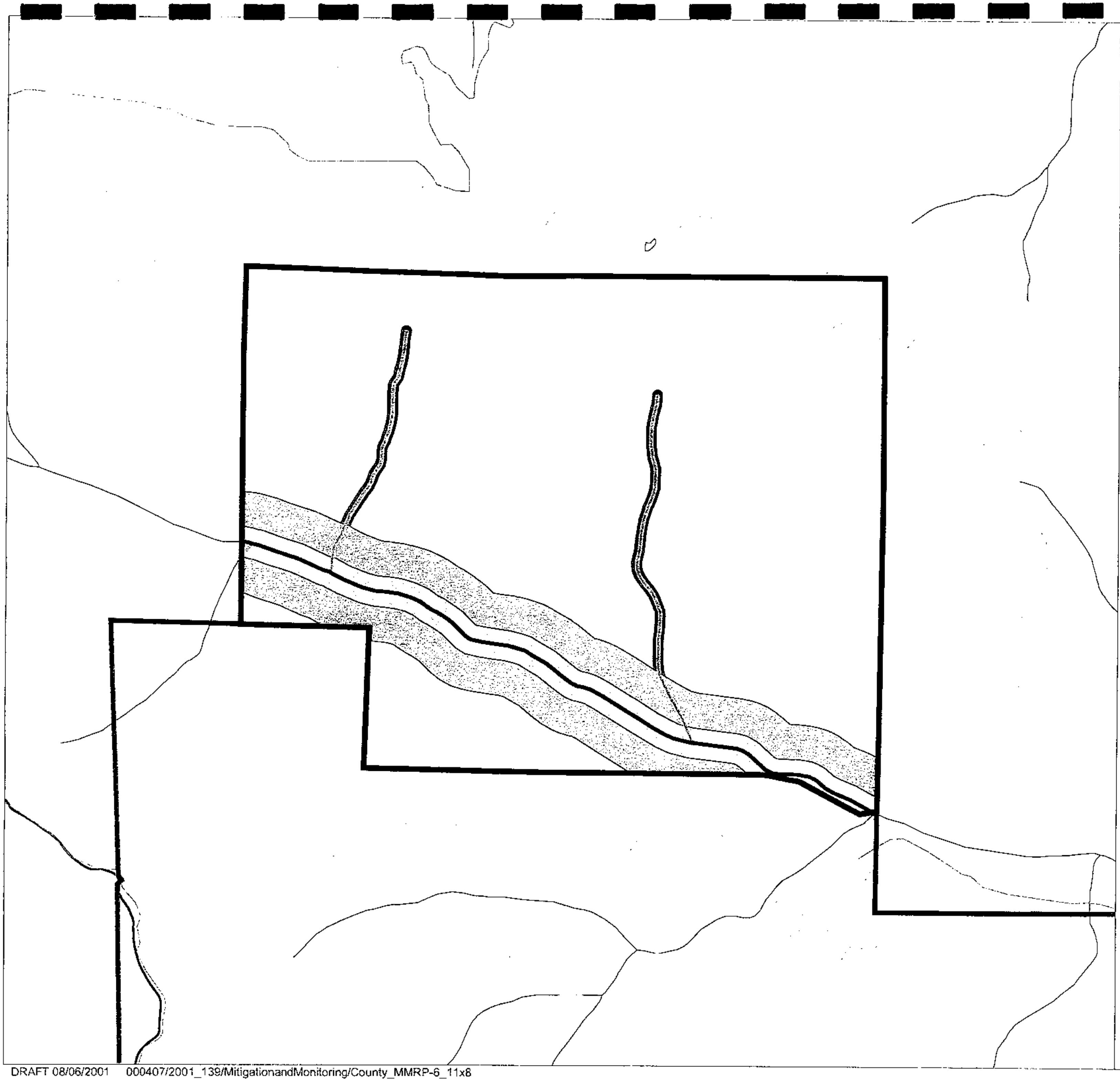


Figure MMRP - 6: Stream and Watershed Protection: Mock Acquisition Example

Mitigation Credit Zones

▭	Mock Parcel
▭	Other Public Lands
╲╱	Second Order Streams
╲╱	First Order Streams
╲╱	USGS 1:24,000 Creeks

Stream Mitigation Credit Zones

■	First Order 50 ft
☐	Second Order 150 ft
▨	Second Order 150-500 ft

N
W E
S

400 0 400 800 Feet

Santa Clara Valley Water District
5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686

DRAFT 08/06/2001 000407/2001_139/MitigationandMonitoring/County_MMRP-6_11x8